Prepared for:

Chino Mines Company Hurley, New Mexico

Administrative Order on Consent

Interim Remedial Action
Groundhog No. 5 Stockpile
Site Investigation Report
Hanover and Whitewater Creeks
Investigation Units

Prepared by:



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1. INTRODUCTION

This report was prepared by Golder Associates Inc. (Golder) for Chino Mines Company (Chino) to report the results of a site investigation of the Groundhog No. 5 Stockpile, within the Hanover/Whitewater Creeks Investigation Units (H/WCIUs). The site location is shown in Figure 1. The purpose of the investigation was to define the chemical nature and physical extent of the Groundhog No. 5 Stockpile sufficiently for Chino to evaluate interim remedial actions. The investigation was consistent with a long-term strategy for closure/closeout and meets standards prescribed in the Administrative Order on Consent (AOC) agreement and the New Mexico Mining Act and Rules.

The study area is shown on Figures 2 and 3. The objectives of the investigation were to:

- characterize the chemical composition of the stockpile and underlying materials,
- estimate the thickness of the stockpile,
- delineate the surface water sub-basin draining to the channel in Lucky Bill Canyon,
- identify any seeps and springs in the immediate area, and
- characterize the chemistry of the surface water in Lucky Bill Canyon below the stockpile.

Chemical characterization of the stockpile materials included acid-base accounting (ABA), total metals analysis, paste pH, and Synthetic Precipitation Leachate Procedure (SPLP). This report describes the results of these analyses and the predicted environmental behavior of the stockpile material.

Ten stockpile samples were collected from three test pits excavated by trackhoe on November 10, 2004.

This work plan is organized into six sections as follows:

Section 1 – Introduction describes strategy and organization of this report;

Section 2 – Site Description summarizes the history and physical setting of the stockpile;

Section 3 – Summary of Field Investigation discusses the test pit investigation, surface water drainage basin mapping, spring surveys, and surface water sampling, and summarizes sampling and analytical methods;

Section 4 – Results of Field Investigation – presents the results of the chemical and textural analyses, and surface water quality;

Section 5 – Conclusions – presents conclusions from the site investigation and recommendations for stockpile reclamation; and

Section 6 - References - lists the references used in preparing this document.

2. SITE DESCRIPTION

The Groundhog No. 5 Stockpile is a small stockpile (less than 2 acres) associated with the Groundhog No. 5 Shaft located on the north wall of Lucky Bill Canyon near its confluence with Bayard Canyon. The location of the stockpile is shown on Figure 2. Infrastructure associated with the operation has been removed, and the shaft has been closed.

The primary ores at the site consisted of lead and zinc sulfides occurring in mineralized veins below the Sugarlump and Kneeling Nun Tuffs visible at the surface in the canyon. The tuffs overlie Cretaceous-Tertiary sediments (the Colorado Formation), which in turn overlie a series of Paleozoic limestones and shales. Stockpile material types at the site include limestone, granodiorite, diorite, quartz monzonite, and tuff. Iron staining is minimal and appears to be restricted to small, isolated locations on the stockpile associated with finer-grained, mineralized material.

The stockpile obscures original surface topography, but visual inspection of the toe of the stockpile indicates that it was probably initially situated on a steep slope and, because area soils are generally relatively thin, that bedrock was likely at or very near the pre-mining land surface.

Two shallow groundwater monitoring wells (GH-97-03 and GH-97-04) are located adjacent to the stockpile (Figure 2). These wells were installed under the AOC in 1997 to collect samples of shallow groundwater in the alluvium/colluvium perched on the bedrock surface. They were sampled and analyzed for dissolved metals in August and September 1997, before and after rain events (Daniel B. Stephens and Associates, Inc, 1997). Metals concentrations in Well GH-97-03 did not exceed New Mexico Water Quality Control Commission standards (Golder, 2000). Well GH-97-04, at the toe of the Groundhog No. 5 Stockpile, was dry. The wells were inspected again in July 2004. Well GH-97-04 was dry. Well GH-97-3, which is located in the channel in Lucky Bill Canyon, was silted in due to flooding.

3. SUMMARY OF FIELD INVESTIGATION

Golder conducted a field investigation of the site on November 11, 2005. The field investigation included:

- surface water drainage mapping,
- surface water sampling,
- inspection for the presence of springs and seeps,
- test pit excavation and geologic logging, and
- sampling of the stockpile materials.

Each of these components of the field investigation is described below. Results of the investigation are discussed in Section 4.

3.1 Surface Water Drainage Mapping, Spring and Seep Survey, and Surface Water Sampling

A visual inspection of the drainage basin was conducted for the purpose of identifying surface water drainage patterns at the site, interaction between surface water and stockpile materials, and any active seeps or springs. No springs or seeps were observed at or near the site.

The surface water drainage basin was visually inspected and sketched on a site topographic map. Surface water flow was observed in the stream channel of Lucky Bill Canyon. A surface water sample was collected by Chino staff as per Standard Operating Procedure (SOP) 13, "Field Sampling of Stream Channels, Springs, and Seeps." The sample was collected in the channel immediately downstream of the stockpile, with concurrence from New Mexico Environment Department (NMED) staff. Surface water samples were shipped directly to SVL Analytical, Inc. (SVL) by Chino.

3.2 Test Pit Excavation and Sampling

Three test pits were excavated in the stockpile during the November 10, 2004 investigation. Test pit locations were selected by the Project Geologist (Jen Pepe, Golder) with

concurrence from the Chino Project Manager (Pam Pinson) and NMED staff (Phil Harrigan).

3.2.1 Test Pit Excavation

The test pits were excavated by James Hamilton Construction Company (Hamilton) using a PC22 OLC trackhoe. Test pit locations are shown on Figure 3. Chino conducted a utility location survey prior to test pit excavation.

The stockpile test pits were logged according to the Unified Soil Classification System (USCS), with emphasis on noting stratification, moisture conditions, secondary mineralization, and lithology of the mine rock. Detailed logs for the stockpile test pits are included in Appendix A. Test Pits GH5-1 and GH5-2 were excavated to the maximum reach of the trackhoe (20 to 22 feet below ground surface [ft bgs] and Test Pit GH5-3 was excavated to refusal at bedrock (7 ft bgs). The stratigraphy, staining, and the presence of roots was noted.

Following excavation, the dimensions of each test pit were measured and the pit was backfilled. After backfilling, a stake was placed in the approximate center of the test pit, and surveyed by Chino.

3.2.2 Test Pit Sampling

Subsamples from each of the three test pits were collected during test pit excavation. Samples were collected from the pit walls from the ground surface to a depth of 4 feet according to SOP 21 (Chino/Steffen, Robertson, and Kirsten [SRK], 1997), Sample Collection from Soil Borings, Excavations and Hand Dug Pits." Samples were documented on the test pit logs (Appendix A). Below 4 ft bgs, samples were collected from the excavator bucket or spoils pile as described below.

- The backhoe operator collected a volume of soil/stockpile with the bucket of the backhoe from each 2-foot interval or distinct layer and emptied the bucket on the ground in the sampling area.
- The Golder field geologist described the stockpile characteristics by visual inspection and soil layers according to American Society for Testing and Materials Method D-2488, "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)," which is based on the USCS, but provides more detail. The Chino geologist provided descriptions of the lithology of the clasts.

- Approximately 1 gallon of the material was transferred to a clean plastic bag, labeled with the depth interval, and held until the excavation was complete.
- Samples from each 2-foot interval were composited by placing the materials from the plastic bags together on a clean sheet of plastic and mixing them together thoroughly. The subsamples were photographed. The subsamples were composited based on layering and types of materials present (Section 4). Subsample compositing was decided jointly by Golder, Chino, and NMED following excavation of each test pit. In some cases, a single subsample was determined to be representative of a layer, and was not composited with other subsamples.
- Two splits of approximately 1 kilogram each were collected from the composited materials, placed in plastic Ziploc™ bags, and labeled according to SOP 4 "Sample Custody and Documentation Procedures." Samples were doubled-bagged with labeling on the inner and outer bag. One of these splits was sent to SVL Analytical in Kellogg, Idaho and the other split was sent to Energy Laboratories, Inc., in Billings, Montana.

Samples were packaged and shipped to the laboratories according to the procedures given in SOP 5, "Packaging and Shipping of Environmental Sample Containers." A chain-of-custody form was completed listing each sample and accompanied the samples to the analytical laboratory. Sample chain-of-custody procedures are detailed in SOP 4, "Sample Custody and Documentation Procedures."

A quality assurance/quality control (QA/QC) sample was collected during the field investigation as outlined in SOP 3, "Field Quality Control." The QA/QC sample was a Blind Field Duplicate (sample GH5 3A). A Blind Decontamination Rinseate Blank was not collected because sampling was conducted using only clean, gloved hands and no other equipment.

3.3 Decontamination Procedure

No reusable equipment was used during sampling; therefore, no decontamination was required. The excavator bucket did not require deconamination because saturated materials were not encountered and the bucket remained free of residual soils between subsample collection.

4.0 RESULTS OF FIELD INVESTIGATION

This section summarizes the chemical composition of the stockpile materials, the suitability of the stockpile materials as a soil cover, and the quality and occurrence of surface water. Volume calculations for the stockpile were submitted under separate cover by Engineers Inc. (Engineers Inc., 2005).

4.1 Geologic Descriptions

Stockpile material types observed on the surface and in test pits were primarily limestone, granodiorite, diorite, and quartz monzonite. Layering of the stockpile and underlying materials in the three test pits includes:

- Limestone Occurred as a surface layer over the entire stockpile in thicknesses from 2 to 15 feet,
- Quartz Monzonite/Granodiorite Occurred from the base of the limestone layer to the pre-mining surface in thicknesses up to 20 feet,
- **Pre-mining Surface** Disturbed colluvium with tuff clasts mixed with some stockpile materials, and
- Underlying Sugarlump Tuff Bedrock.

Stockpile materials were generally gravelly sands and sandy gravels (Appendix A). The matrix was moist to wet, but no saturated zones were encountered.

The upper layer of the stockpile is composed primarily of angular limestone gravel. In some areas on the stockpile surface, the limestone contained minor sulfide mineralization and iron staining. The limestone layer was 4 feet thick in Test Pit GH5-1, which was excavated in the center of the stockpile, parallel to the slope face. Minimal mineralization and staining were observed in Test Pit GH-1. The limestone layer in Test Pit GH5-2, which was excavated near the crest of the stockpile perpendicular to the slope face, dipped steeply toward the slope face, as would be expected. The layer ranged from 2 to 19 feet thick. The location for Test Pit GH5-2 was selected based on the presence of iron staining at the surface to investigate the vertical extent of the staining. Staining and some sulfide mineralization extended to approximately 6 inches bgs and was laterally discontinuous. A grab sample was collected from this 6-inch layer. Limestone in Test Pit GH5-2 below 6 inches bgs was unmineralized. In Test Pit GH5-3, the limestone layer was unmineralized and approximately 2 feet thick, directly overlying the premining surface.

The lower portion of the stockpile comprises primarily granodiorite and quartz monzonite. This lower layer was generally unmineralized, contained occasional limestone clasts, and reacted with hydrochloric acid (HCl), even in the absence of limestone. The granodiorite and monzonite were variably weathered, with feldspar crystals producing clay lenses and weathering rinds. Layering was observed based on the lithology (primarily diorite or monzonite), color, and grain size, but this unit is relatively homogeneous. The quartz monzonite/granodiorite layer overlaid the pre-mining surface in Test Pit GH5-1. Test Pit GH5-2 did not extend below the base of the stockpile materials.

The pre-mining surface water characterized by the presence of tuff clasts, a finer-grained matrix, and a weaker reaction to HCl. The pre-mining surface was encountered at 20 ft bgs in GH5-1 and at 2 ft bgs in GH5-3. Competent bedrock was only encountered in GH5-3, at a depth of 7 ft bgs.

4.2 Laboratory Chemical Analysis and Interpretation

Geochemical characterization included ABA, paste pH, SPLP, and total metals analysis. Analyses were performed in accordance with the following methods:

- Total Metals Analysis (Digestion Method 3050),
- ABA (Modified Sobek),
- Paste pH (ASA Method 9), and
- SPLP (Method 1312).

Samples were air-dried and crushed to 3/8-inch according to SPLP Method 1312 in the laboratory prior to analysis. An aliquot of each sample was pulverized to minus 160 mesh (approximately 0.09 millimeter) for ABA (Modified Sobek), paste pH, and total metals analysis (Method 3050).

Laboratory analyses for characterization of the material as a growth medium included:

- physical characteristics (texture, Method ASA15-5);
- saturated paste pH and conductivity (Method ASAM19-32),;
- phosphorus (Method ASA24-5);
- nitrogen (ASA38-3); and
- organic matter (ASA29-3).

4.2.1 Geochemical Interpretation

Acid-base Accounting

The ABA results are presented in Table 1. Figures 4 through 9 provide graphical representations of the pertinent results.

In accordance with Price (1997), the following screening criteria were used to classify the samples in terms of their acid generation potential:

ARD	Screening Criterion	Comments
Potential		
Likely	Neutralizing	Likely ARD generating unless sulfide minerals
	Potential/Acid	are non-reactive
	Potential (NP/AP) < 1	
Possibly	1 < NP/AP < 2	Possibly ARD generating if NP is
		insufficiently reactive or is depleted at a rate
	•	faster than sulfides
Low	2 < NP/AP < 4	Not potentially ARD generating unless
		sulfides are preferentially exposed or
		extremely reactive in combination with
		insufficiently reactive NP
None	NP/AP > 4	Not acid generating

ARD = acid rock drainage

NP = neutralization potential

AP = acid potential

A fifth category follows an empirical rule of thumb. Materials with a pyrite sulfur content less than 0.3 percent and a paste pH greater than 5.5 generally are considered non-acid-generating regardless of their neutralization potential/acid potential (NP/AP) ratio.

Note that these criteria can only be used to identify the <u>potential</u> of a material to generate acid; ABA results may not be able to predict the <u>likelihood</u> of acid generation and <u>rate</u> at which acid generation occurs. Long-term testing (e.g., humidity cell) and/or use of field testing/observations are generally required to address the latter issues.

Figure 4 shows the pyrite sulfur versus the total sulfur content. Sulfide sulfur accounts for approximately 41 percent of total sulfur on average, with sulfate sulfur and residual sulfur

on average representing approximately 51 and 8 percent, respectively. This is further illustrated by Figure 5, which shows sulfate sulfur versus total sulfur.

Figure 6 shows NP values versus AP values. Also included are the linear expressions of the acid rock drainage criteria advocated by Price (1997). Based on this classification, all samples are designated as non-acid-generating because all samples have an NP/AP ratio > 4.

Figure 7 shows that the paste pH increases as the NP increases, but only for samples above 4 feet depth in the stockpile. In general, NP appears to decrease with depth. A plot of paste pH versus NP/AP (Figure 8) indicates the same narrow range of alkaline paste pH values and confirms little acid-generating potential. These results are consistent with the composition of the stockpile described in Section 4.1 with high NP limestone in the upper portions and lower NP granodiorite in the lower portions.

Figure 9 can be used to make an assessment of the empirical rule of thumb that relates paste pH to pyrite sulfur content. Samples in the upper left quadrant (pyrite sulfur < 0.3 wt%, paste pH > 5.5) are considered unlikely to generate acid. This group consists of all samples except GH5-2 0-6". Despite the higher sulfur content, this sample is also considered not acid generating because of its NP/AP value of approximately 14.

SPLP and Total Metals

Total metals and SPLP results are listed in Tables 2 and 3, respectively. Total metals analysis was conducted to determine the nature of the stockpile materials. A subset of the samples was subjected to SPLP testing to determine whether metals identified by total metals analysis had the potential to leach from the stockpile.

SPLP leachate pH values were all circumneutral, and no groundwater or surface water metals standards were exceeded. Of the target constituents in SPLP leachate, only total dissolved solids (TDS) was identified as having the potential to leach above the applicable groundwater standard in one sample (GH5-1 0-2', Table 2). The leachate pH for this sample was 6.28 and a cation-anion balance accuracy check yields a 5 percent charge imbalance, indicating acceptable analytical accuracy. Because the measured, very high TDS value cannot be reproduced by summing all dissolved ions, this suggests that the TDS value may represent analytical error.

4.2.2 Soil Cover Evaluation

The materials in the Groundhog No. 5 Stockpile are moderately fine-textured, with moderate to high rock fragment contents, as shown in the table below.

Sample ID	Depth	Rock Fragments	Sand	Silt	Clay	Texture	EC	P	NO3	ОМ
	L	% vol	%	%	%	USDA	dS/m	lb/ac-ft	lb/ac-ft	%
GH5-1	6-10'	53	64	16	20	SCL	0.83	<4	<4	0.19
GH5-1	12-16'	29	64	12	24	SCL	0.33	<4	<4	0.14
GH5-1	18-20'	17	68	11	21	SCL	0.44	<4	<4	0.19
GH5-1	4-8'	84	78	7	15	SL	2.24	8_	4	0.67
GH5-2	0-6"	43	56	21	23	SCL	2.32	20	4	0.84
GH5-2	4-8'	49	68	15	17	SL	2.72	<4	<4	0.57
GH5-2	12-20'	51	68	12	20	SCL	2.58	<4	<4	0.86
GH5-3	0-2'	53	72	11	17	SL	1.06	4	<4	0.71

EC = Electrical Conductivity

P = Phosphorus

 $NO_3 = Nitrogen$

OM = Organic Matter

dS/M = deciSiemens per meter

lb/ac-ft = pounds per acre-foot

USDA = U.S. Department of Agriculture

These materials are neutral to slightly alkaline (pH 7.1 to 7.8) and non-saline to slightly saline (0.3 to 2.7 deciSiemens per meter). The slightly alkaline pHs and low salinity indicate that these materials are not affected by acid formation or acidic leachates. The positive ABA data confirm that these materials lack the capacity to generate excess acidity (Section 4.2.1). The organic matter content is low (less than 1 percent), but is consistent with levels found in the surface layers of arid region soils. Similarly, the extractable nitrogen and phosphorous concentrations are low, but are not considered limiting for native and adapted reclamation species. Thus, no chemical or physical limitations are predicted in the use of these materials as reclamation substrates and additional cover material is not required to establish vegetation. The generally coarse-textured nature of the materials is considered desirable from an erosional stability perspective.

4.2.3 Results of Surface Water Drainage Mapping, Spring and Seep Survey, and Surface Water Sampling

A visual inspection of the drainage sub-basin (Figure 2) was conducted for the purpose of identifying surface water drainage patterns on and near the site, possible interaction between Groundhog No. 5 Stockpile materials and surface water, and any active seeps or springs on and/or near the site.

The drainage sub-basin is much smaller than estimated in the work plan (Golder, 2004). This was due to the presence of drainage channels excavated around the site to intercept surface water run-on and divert it around the stockpile. The extent of the drainage sub-basin and the locations of the drainage channels are shown on Figure 3. The drainage basin covers 3.5 acres, 1.7 of which are covered by the stockpile itself.

No seeps or springs were observed within the drainage sub-basin during the site investigation. There were no observed areas of high moisture, unusual evaporite deposition, or concentrations of wetland-type vegetation.

Water was flowing in the stream near the stockpile. The stream was sampled at the location shown on Figure 3, and analytical results are listed in Table 3. No exceedances of New Mexico groundwater or surface water standards were exceeded.

5. CONCLUSIONS AND RECOMMENDATIONS

All 10 waste material samples analyzed in this study classify as non-acid-generating and yield slightly alkaline paste pH values. All samples also exhibit low metals leachability and consistently circumneutral leachate pH. Surface water does not exceed water quality standards in the stream below the stockpile. Therefore, the results from the geochemical characterization suggest that the Groundhog No. 5 Stockpile does not represent a significant potential source of acidity and metals to the local watershed.

Further, no chemical or physical limitations are predicted in the use of these materials as reclamation substrates. Golder recommends direct revegetation of the regraded stockpile materials. This has the additional advantage of eliminating the need for a borrow area on the undisturbed adjacent hillside.

After the area is graded to a stable slope configuration (Engineers Inc., 2004), the following practices are recommended to revegetate the site.

<u>Seedbed preparation:</u> The seedbed will be scarified to a depth of 12 inches to leave a roughened surface. All scarification operations will be conducted strictly on the contour.

<u>Seeding</u>: Seeding will be accomplished by drill or broadcast techniques depending on the site conditions and available equipment spread.

<u>Seed mixtures:</u> The seed mix specified for this project is listed in the table below. Alternative seed mixes may be substituted depending on the seasonal availability following consultation with the seed suppliers and NMED.

<u>Mulching</u>: Long-stem, native grass hay mulch should be applied at a rate of 2 tons per acre and stabilized by crimping. The mulch must be certified weed free and the source of origin must be specified.

Species	Common Name	Lbs/ac
Grasses		
Bouteloua gracilis	Blue Grama	0.35
Bouteloua curtipendula	Sideoats grama	1.5
Leptochloa dubia	Green Sprangletop	0.5
Sporobolus cryptandrus	Sand Dropseed	0.05
Sitanion hystrix	Bottlebrush squirreltail	1.25
Agropyron dastachyum v. rip.	Streambank wheatgrass	0.5
Shrubs		
Eurotia lanata	Winterfat	1.5
Atriplex canescens	Fourwing saltbush	1.5
Chrysothamnus nauseosus	Rubber Rabbitbush	0.1
Forbs		
Linum lewisii	Blue flax	0.15
Penstemon ambiguus	Bush penstemon	0.5
Penstemon palmeri	Palmer penstemon	0.3
Total Seed Pounds per Acre		8.2
(Pure Live Seed)		

Lbs/ac = pounds per acre

6. REFERENCES

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	ACID-BASE ACCOUNTING RESULTS, GROUNDHOG NO. 5 STOCKPILE MATERIALS										
	Depth of	1:1 Paste pH	Total Sulfur	Pyritic Sulfur	Sulfate Sulfur	Unident. Sulfur	Net Neutralization Potential	NP (PyrS)	AP (Pyr-S)	NP/AP Ratio	Material Classification
Location ID	Sample	(s.u.)		(% as S	Sulfur)		tons Ca	CO3/Kton		(Pyr-S)	
GH5-1	0-2'	7.96	0.52	0.1	0.33	0.09	732.7	735.82	3.13	235	Not Acid Generating
GH5-1	4'	8.16	0.17	0.17	<0.01	0.01	764.06	769.37	5.31	145	Not Acid Generating
GH5-1	6-10'	8.09	<0.01	<0.01	<0.01	<0.01	63.52	63.52	<0.3	212	Not Acid Generating
GH5-1	12-16'	7.72	<0.01	<0.01	<0.01	<0.01	16.54	16.54	<0.3	55	Not Acid Generating
GH5-1	18-20'	8.39	<0.01	<0.01	<0.01	<0.01	13.7	13.66	<0.3	46	Not Acid Generating
GH5-2	0-6"	7.25	1.2	0.77	0.34	0.09	318.7	342.74	24.06	14	Not Acid Generating
GH5-2	4-8'	7.61	0.24	0.03	0.2	0.01	450.9	451.8	0.94	481	Not Acid Generating
GH5-2	12-20'	7.69	0.35	0.25	0.09	0.01	91.7	99.47	7.81	13	Not Acid Generating
GH5-3	0-2'	7.89	0.1	0.01	0.08	0.01	715.14	715.45	0.31	2308	Not Acid Generating
GH5-3	3A	7.95	0.09	0.01	0.08	<0.01	767.87	768.18	0.31	2478	Not Acid Generating

Notes:

s.u. = standard units

tons CaCO3/Kton = tons of calcium carbonate per kiloton
NP = neutralization potential
AP = acid potential

					TOTAL	METAL	S ANALY:		TABLE 2 DUNDHO		ГОСКРІЦ	E MATE	RIALS					·	
Sample	Depth Interval	Al	As	Ca	Cd	Co	Cr	Cu	Fe	К	Mg	Mn	Mo	Na	Ni	Pb	Sb	Se	Zn
G115-1	0-2'	5400	3	264000	17.2	3.1	21	491	8040	1390	7960	1930	2.1	62.4	9.3	2880	<0.76	<0.80	6630
GH5-1	4'	4490	3.4	256000	3.4	2.3	20.5	58.5	5800	1370	18400	1530	1.8	77	9.6	661	<0.76	<1.6	1020
GH5-1	6-10'	11800	2.7	23200	0.98	7.1	41.6	21.5	15900	1460	8750	1030	4.1	167	1.3	22.4	<0.76	<0.80	323
GH5-1	12-16'	13300	4.1	6810	0.76	6.3	35.1	89.5	22500	2140	6640	721	3.4	98.6	5.2	46.5	<0.76	<0.80	172
GH5-1	18-20'	10600	3.8	8280	0.41	4.2	41.6	47.8	13400	1780	4590	502	3.5	254	3.8	37.7	<0.76	<0.80	104
GH5-2	0-6"	6430	30.8	131000	21.4	4.3	33.7	312	24300	2180	3600	5040	5.6	77.1	<0.34	2050	<0.76	<0.80	6480
GH5-2	4-8"	10300	6.5	169000	2.1	4.7	56.6	15.6	16100	1640	6860	472	2.9	87.6	30.7	205	<0.76	<4.0	299
GH5-2	12-20'	9540	4.4	36400	0.87	3.8	38.6	14.6	14400	3200	5010	3220	4.1	87.4	<0.34	186	<0.76	<1.6	226
GH5-3	0-2'	5220	2.4	259000	0.57	2.4	17.7	26.5	5760	1730	9520	268	1.1	77.7	9.8	33.6	<0.76	<1.6	90.7
G115-3	3A	5050	3.8	260000	0.54	2.1	13.6	23.7	5520	1550	9080	288	0.71	74.4	9.1	29.8	<0.76	<1.6	87.6

Notes

All data are in units of milligrams per kilogram (mg/kg)

	The last								S	SPLP AND	SURFAC	E WATE	TAB R ANALY		OUNDHO!	G NO. 5 S	ТОСКРІІ	LE									
Stan	dard	рН	Ca	K	Mg	Na	Al	As	Cd	Co	Cr	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Zn	TDS	CI	F	SO4	Alkalinity	ALK-Bicarbonate	ALK-Carbonate
NM GW Standard	for Human Health	NS	NS	NS	NS	NS	NS	0.1	0.01	NS	0.05	NS	NS	NS	NS	NS	0.05	NS	0.05	NS	NS	NS	1.6	NS	NS	NS	NS
Other NM GW Sta Water	ndard for Domestic Supply	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.0	1.0	0.2	NS	NS	NS	NS	NS	NS	1000	250	NS	600	NS	NS	NS
	ndard for Irrigation	NS	NS	NS	NS	NS	5.0	NS	NS	0.05	NS	NS	NS	NS	1.0	0.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
NM Surface W	ater Standard	NS	NS	NS	NS	NS	5.0	0.1	0.01	0.1	0.1	0.1	NS	NS	1.0	0.2	0.1	NS	NS	2.0	NS	NS	NS	NS	NS	NS	NS
SPLP Sample	Depth Interval								No.					ALC: N													ALL VALUE OF THE STATE OF THE S
GH5-1	0-2'	6.28	11.3	1.22	0.759	0.409	0.0604	< 0.0006	<0.0002	< 0.0005	< 0.0003	< 0.0004	< 0.0059	<0.0006	0.0061	< 0.0017	0.0013	<0.0038	<0.0008	0.00052	5060	0.209	0.112	16.3	18.3	18.3	<1.0
GH5-1	4'	6.4	8.82	1.23	0.987	0.275	0.145	<0.0006	<0.0002	0.00051	<0.0003	<0.0004	< 0.0059	<0.0006	0.0052	< 0.0017	0.00085	<0.0038	<0.0008	0.00034	60	0.221	0.158	9.93	21.79	21.79	<1.0
GH5-1	6-10'	6.39	6.37	1	1.18	3.17	0.0947	0.0065	< 0.0002	< 0.0005	< 0.0003	<0.0004	0.0068	0.0011	0.0031	< 0.0017	0.0011	<0.0038	<0.0008	0.00066	55	<0.2	<0.1	3.67	29.4	29.4	<1.0
GH5-1	12-16'	6.52	5.5	0.492	1.27	15.6	0.407	0.0016	< 0.0002	< 0.0005	0.00075	0.0013	0.247	0.0061	0.0035	< 0.0017	0.002	<0.0038	<0.0008	0.0052	99	<0.2	0.286	7.74	44.4	44.4	<1.0
GH5-1	18-20'	6.32	6.57	0.691	1.2	4.07	1.28	0.0036	< 0.0002	0.0006	0.00042	0.0052	0.771	0.0247	0.0029	< 0.0017	0.0037	<0.0038	<0.0008	0.0095	69	0.777	0.386	4.52	25	25	<1.0
GH5-2	0-6"	6.21	128	2	1.51	0.876	<0.0121	< 0.0006	0.00038	< 0.0005	< 0.0003	<0.0004	0.0065	0.0462	0.0076	< 0.0017	0.0012	<0.0038	<0.0008	0.0016	537	<0.2	0.289	315	30.3	30.3	<1.0
GH5-2	4-8"	6.31	99	2.36	4.69	0.445	0.0848	0.00086	< 0.0002	0.00051	< 0.0003	< 0.0004	0.0068	0.0065	0.0101	<0.0017	0.0011	<0.0038	<0.0008	< 0.0003	445	<0.2	0.408	268	12.2	12.2	<1.0
GH5-2	12-20'	6.24	21.8	2.95	2.26	1.02	0.0983	0.0031	0.0002	< 0.0005	< 0.0003	< 0.0004	< 0.0059	0.0086	0.012	< 0.0017	0.00093	<0.0038	<0.0008	< 0.0003	117	<0.2	0.308	55.8	15.6	15.6	<1.0
GH5-3	0-2'	6.54	7.95	1.2	0.908	0.303	0.155	0.0008	0.00022	< 0.0005	< 0.0003	<0.0004	< 0.0059	0.00084	0.0024	< 0.0017	0.0011	0.0048	<0.0008	< 0.0003	41	0.214	<0.1	8.38	19.3	19.3	<1.0
GH5-3	3A	6.39	7.25	1.26	0.838	0.329	0.196	< 0.0006	< 0.0002	0.00057	0.00032	< 0.0004	< 0.0059	<0.0006	0.0022	< 0.0017	0.00093	<0.0038	<0.0008	< 0.0003	55	0.235	<0.1	5.27	20.2	20.2	<1.0
Sample	也是我们的一个																				FIGURE				MI SHOW		A SHAPE
GH5 @ Lucky Bill	NA	6.83	55.3	5	15	36	< 0.0121	0.00068	0.0006	< 0.0005	< 0.0003	0.0059	0.023	0.0112	0.0092	0.0018	0.0011	<0.0038	<0.0008	0.107	391	8.72	0.245	122	144	144	<1.0

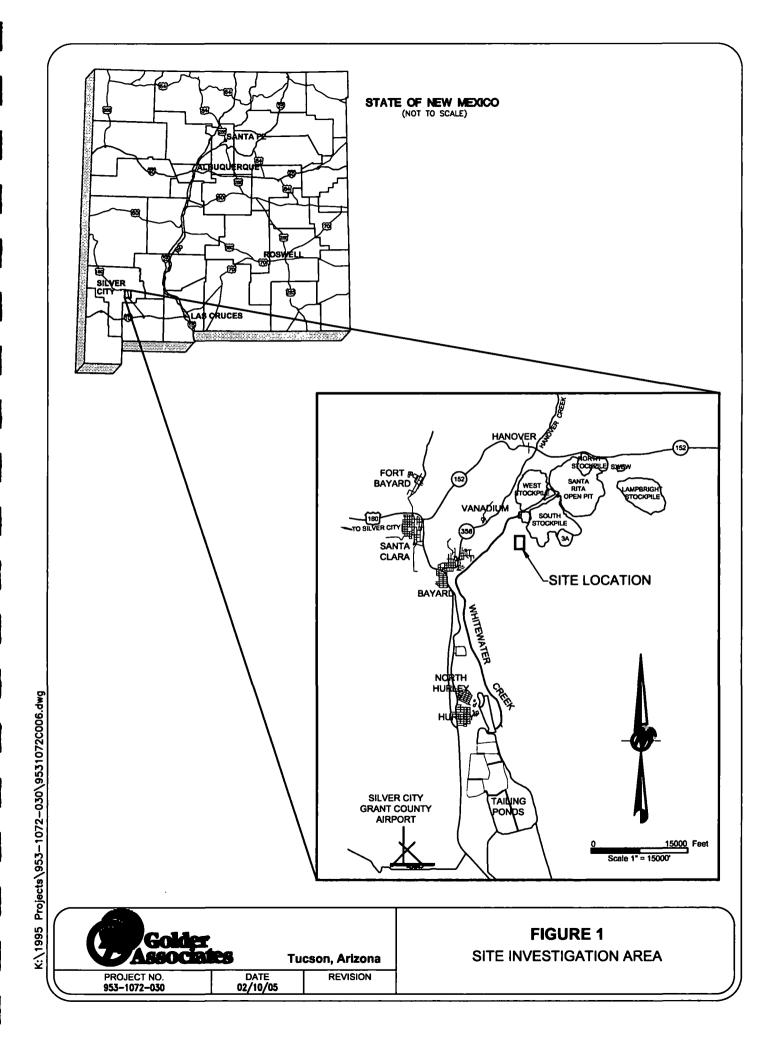
Notes

All standards and data are in units of milligrams per liter (mg/L)

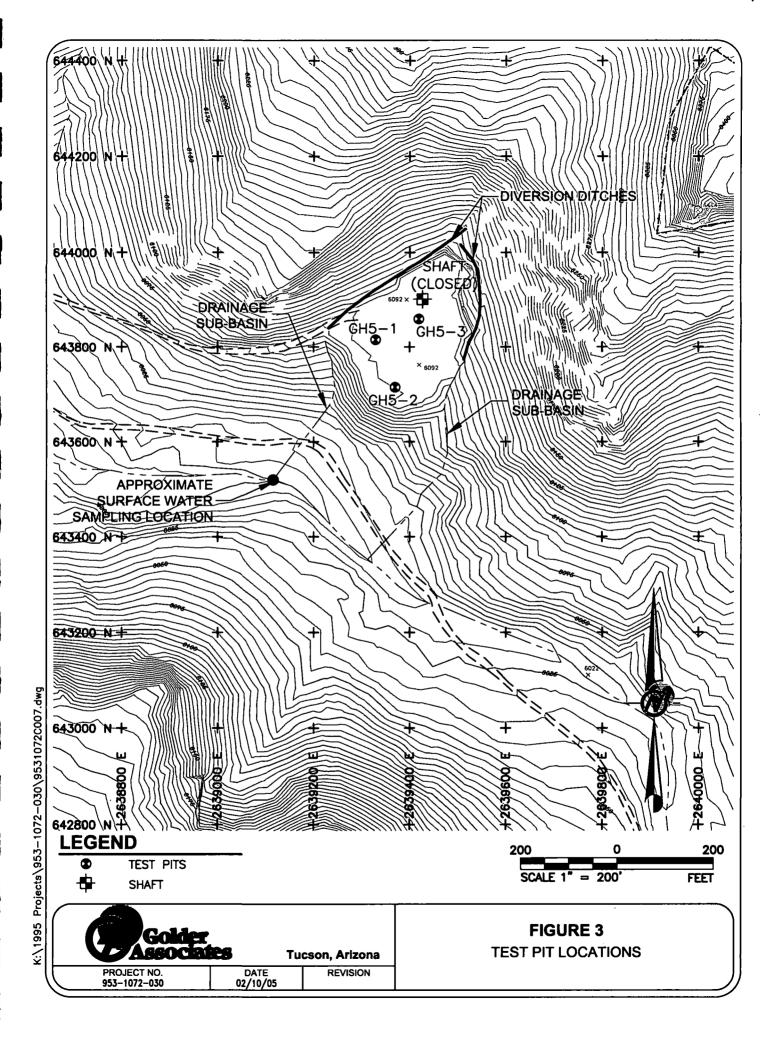
NS = no standard exists for this constituent

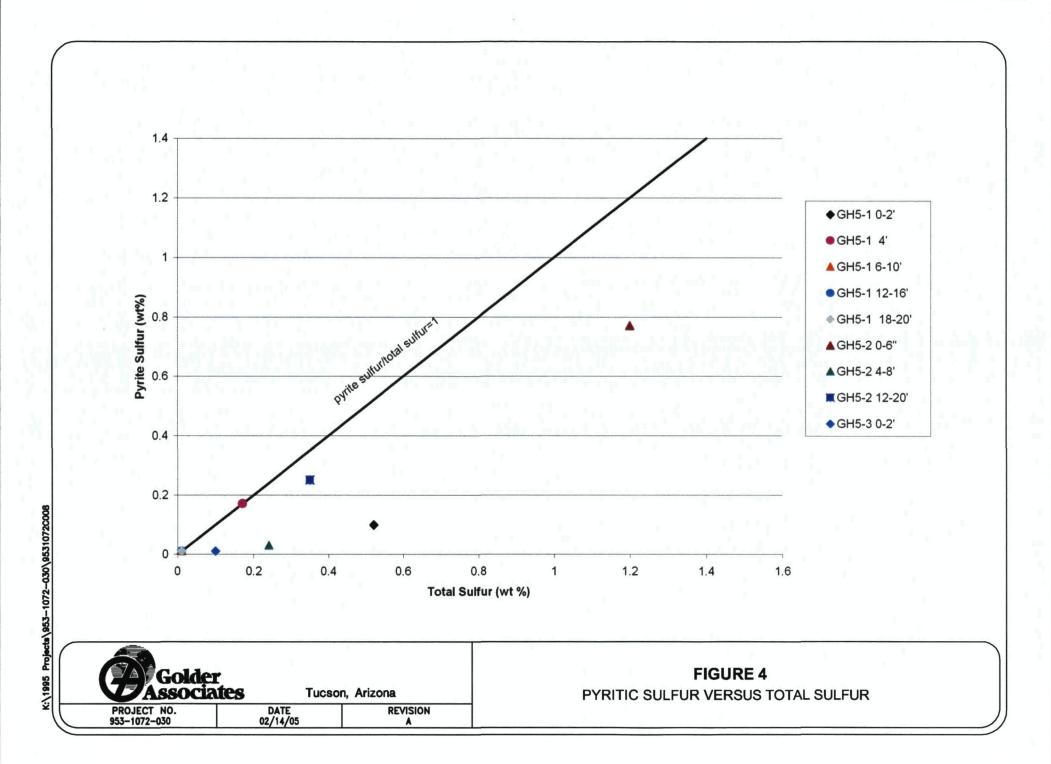
Exceeds groundwater standards only

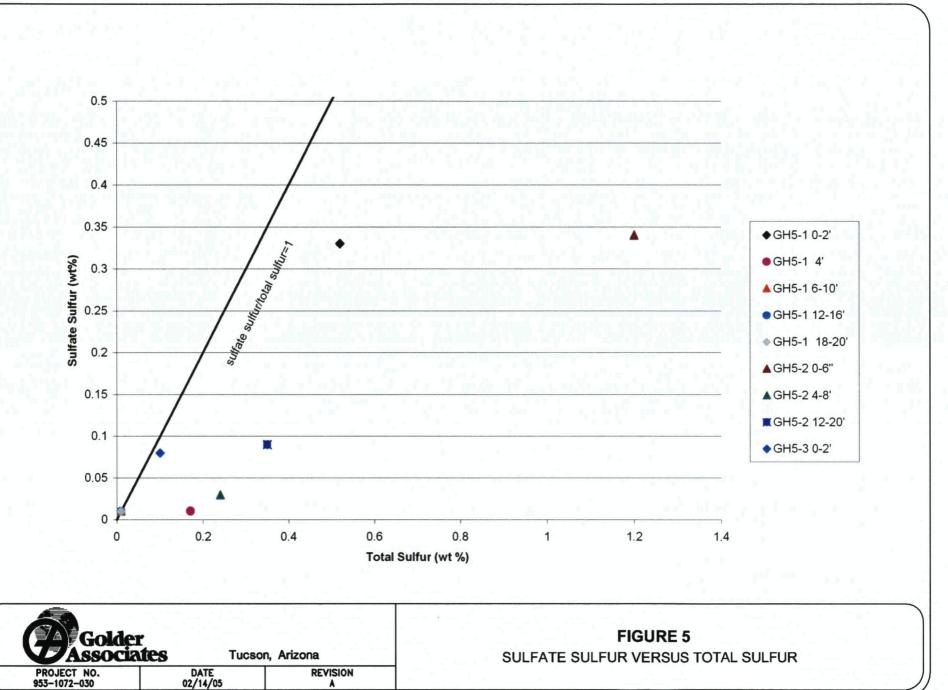
SPLP = Synthetic Precipitation Leachate Procudure

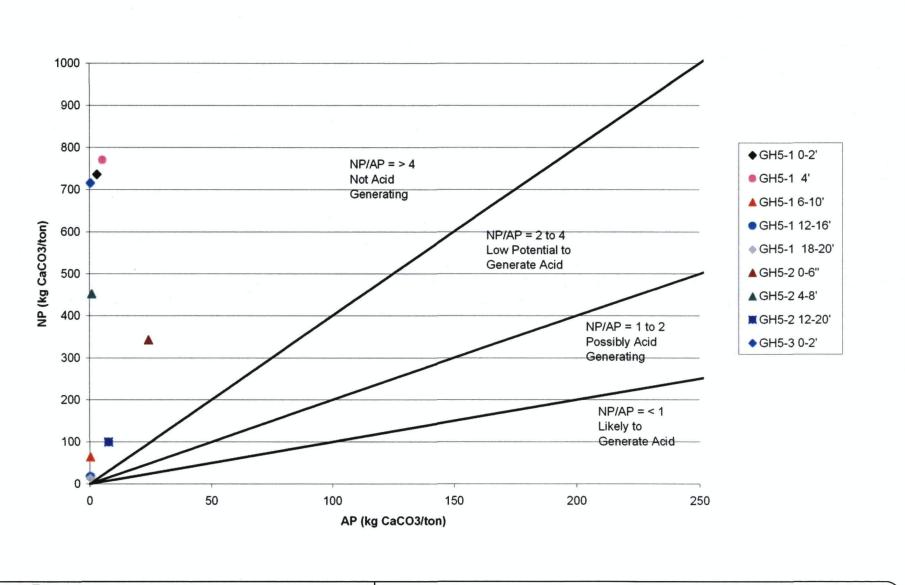


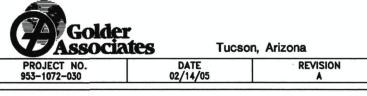
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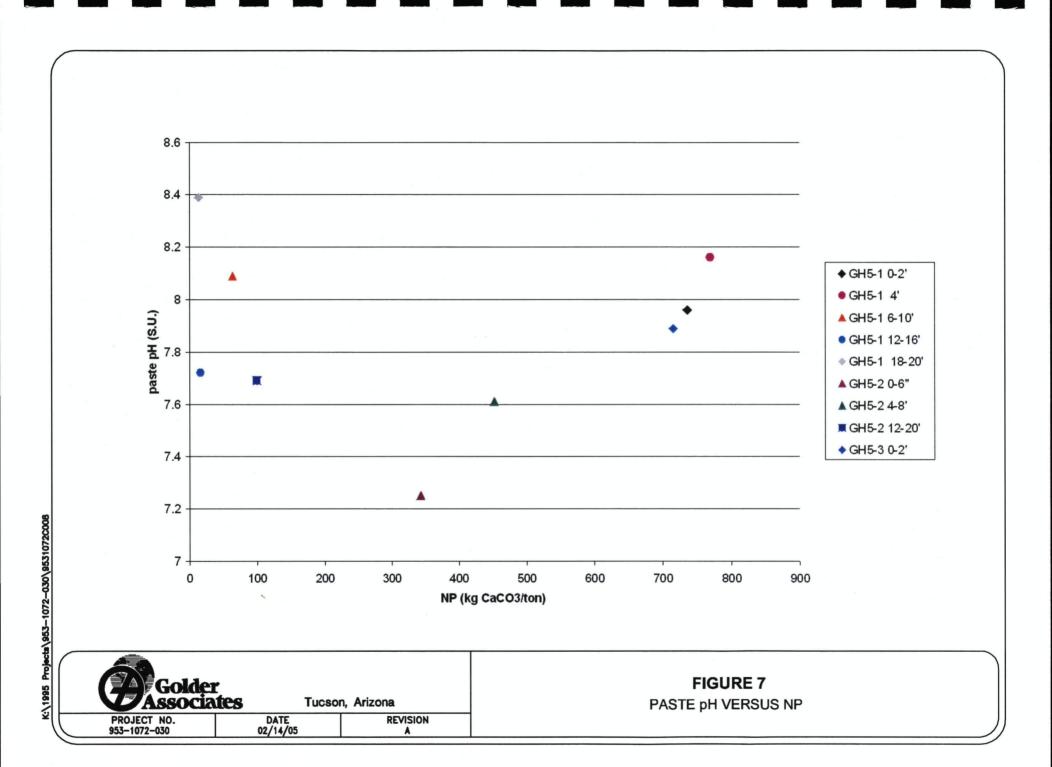


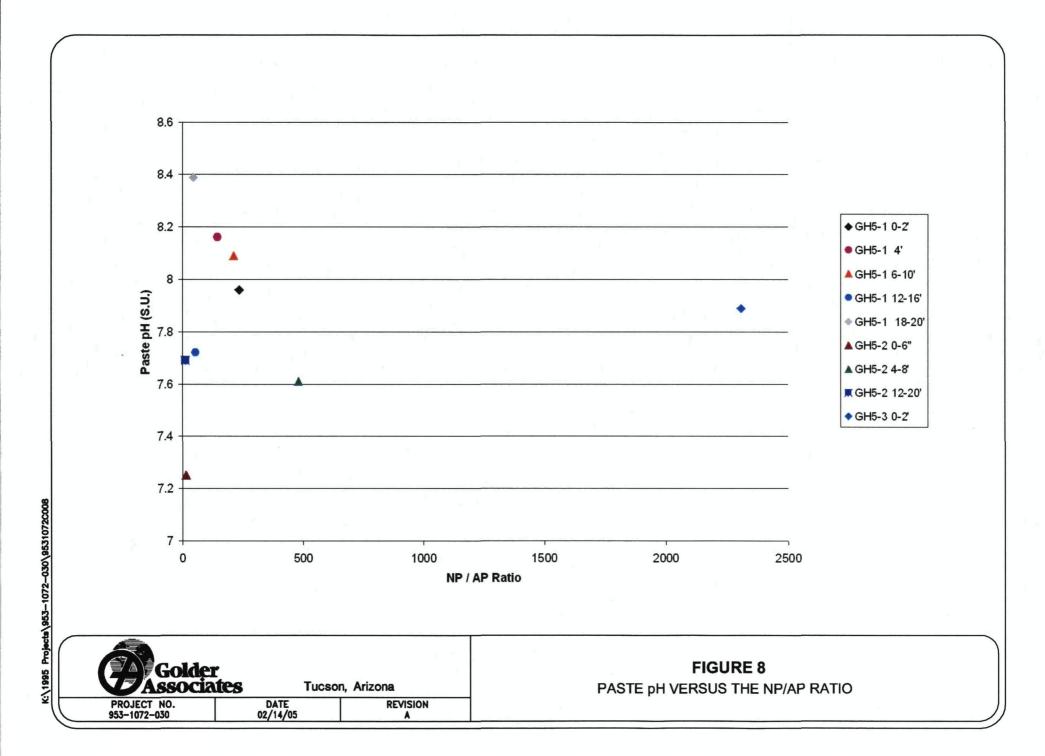




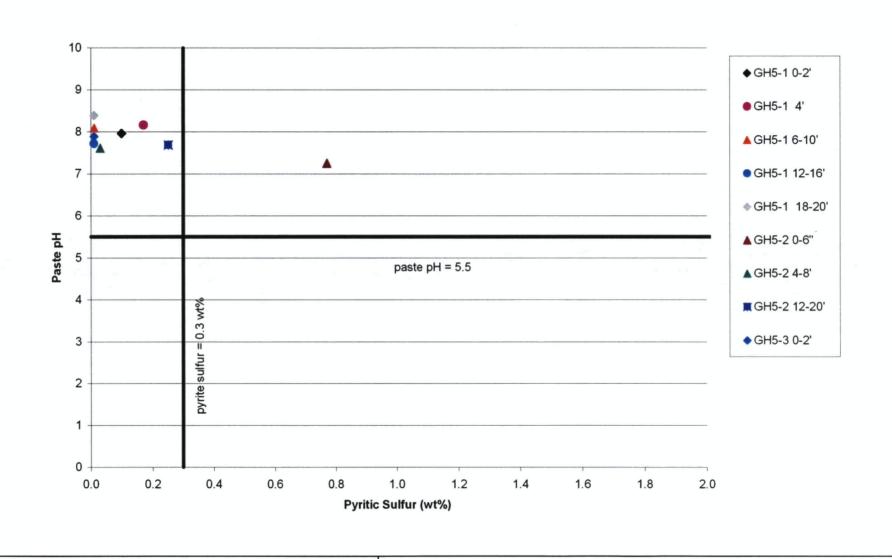
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FIGURE 6
NEUTRALIZATION POTENTIAL VERSUS ACID POTENTIAL





PROJECT NO. 953-1072-030



Tucson, Arizona

REVISION

DATE 02/14/05 FIGURE 9

PASTE pH VERSUS PYRITIC SULFUR

APPENDIX A

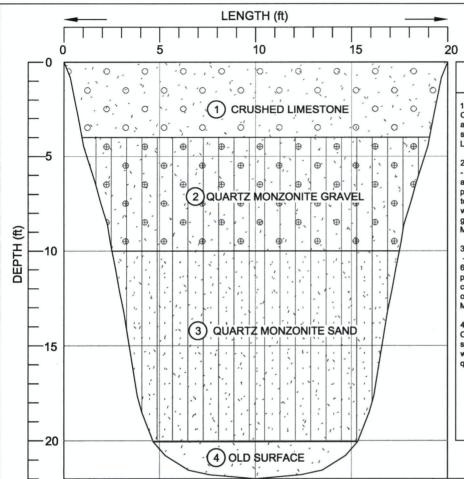
TEST PIT LOGS

FIELD TEST PIT LOG

TEST PIT GH5-1

TEMP 40 °F WEATHER SUNNY ENGINEER JEN PEPE OPERATOR EDDIE JOHNSON
EQUIPMENT PC22 OLC TRACKHOE CONTRACTOR HAMILTON DATE 11/10/04

ELEVATION DATUM JOB 953-1072-030
LOCATION WEST CENTER OF STOCKPILE TOP



LITHOLOGIC DESCRIPTIONS AND EXCAVATION NOTES

- 1. (0'-4') Poorly graded gravel with sand, GW 20% Oversize (>3" up to 6"), 75% angular gravel, 20% angular sand, 5% fines; black, moist, non-plastic; reacts strongly with HCl, occasional iron staining in upper 1'. Lithics: crushed limestone. (STOCKPILE MATERIAL)
- 2. (4'-10') Well graded gravel with silt and sand, GW-GM 20% Oversize (->3" up to 8"), 50% angular gravel, 40% angular to subangular sand, 10% fines; brown, wet, low plasticity; reacts weakly with HCI. Feldspars weathering to clays. Lithics: altered quartz monzonite and diorite with some limestone (>4"); At 10', material is moist, grayish brown, and clasts are subrounded. (STOCKPILE MATERIAL)
- 3. (10'-20) Well graded sand with silt and gravel, SW-SM 10% Oversize (>3" up to 12"), 25% subangular gravel, 65% subangular sand, 10% fines; brown, wet, low plasticity; no reaction with HCl except on limestone cobbles. Lithics: weathered quartz monzonite, occasional dolomite and limestone chips. (STOCKPILE MATERIAL)
- 4. (20'-22') Well graded sand with gravel, SW 15% Oversize (>3"), 20% subangular gravel, 75% subangular sand, 5% fines; brown, moist, non-plastic; reacts weakly with HCI. Lithics: pink tuff, some monzonite, rare quartzite. (COLLUVIUM OF ORIGINAL SURFACE)



	SAMPLES									
	NO.	DESCRIPTION								
	GH5-1 0'-2'	STOCKPILE-LIMESTONE								
	GH5-1 4'	STOCKPILE-QUARTZ MONZONITE GRAVEL								
	GH5-1 6'-10'	STOCKPILE-QUARTZ MONZONITE SAND								
	GH5-1 12'-16'	STOCKPILE-QUARTZ MONZONITE SAND								
Ī	GH5-1 20'-22'	OLD SURFACE								
- 1										

SPECIAL NOTES:

DRY HOLE

DID NOT REACH UNDERLYING MATERIALS BELOW OLD SURFACE

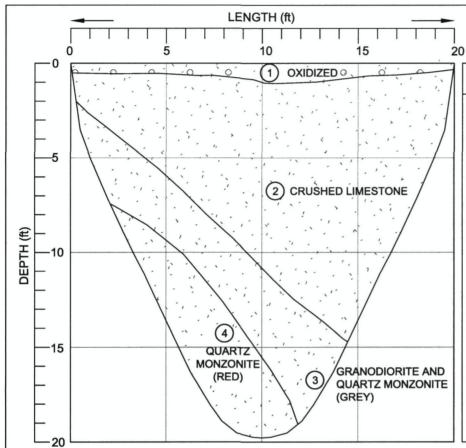
SAMPLE @ 18' WAS MIXED STOCKPILE/OLD SURFACE. SAMPLE WAS DISCARDED

FIELD TEST PIT LOG

TEST PIT GH5-2

TEMP 40 °F WEATHER SUNNY ENGINEER JEN PEPE OPERATOR EDDIE JOHNSON
EQUIPMENT PC22 OLC TRACKHOE CONTRACTOR HAMILTON DATE 11/10/04

ELEVATION DATUM JOB 953-1072-030
LOCATION EAST CENTER OF STOCKPILE TOP



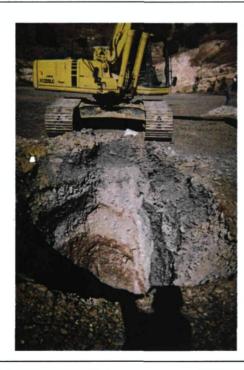
LITHOLOGIC DESCRIPTIONS AND EXCAVATION NOTES

1. (0'-0.5') Well graded gravel with sand, GW - 30% Oversize (>3"), 50% angular gravel, 45% angular sand, 5% fines; grayish brown and orange, moist, non-plastic; reacts strongly with HCI; some secondary jarosite deposits. Lithics: crushed fossiliferous limestone with granodiorite and quartz monzonite, some iron staining; sulfides present (pyrite and chalcopyrite with calite-filled vugs). (STOCKPILE MATERIAL)

2. (0.5'-8' approx; note angled contact) Well graded sand with gravel, SW - 10% Oversize (-3"), 35% angular gravel, 60% angular sand, 5% fines; black, wet, non-plastic; reacts strongly with HCl; some secondary jarosite deposits. Lithics: crushed fossiliferous limestone with granodiorite and few quartz monzonite, some iron staining. (STOCKPILE MATERIAL)

3. (8'-12' approx; note angled contact) Well graded sand with gravel, SW - 10% Oversize (>3"), 35% subangular gravel, 60% subangular sand, 5% fines; green gray and reddish brown, moist, non-plastic; reacts strongly with HCI. Occasional roots present. Lithics: quartz monzonite with some limestone; trace disseminated pyrite at 12'. (STOCKPILE MATERIAL)

4. (12'-20 approx; note angled contact) Well graded sand with gravel, SW - 5% Oversize (>3"), 45% subangular gravel, 50% subangular sand, 5% fines; dark reddish brown, moist, non-plastic; reacts strongly with HCl. Occasional roots present. Lithics: quartz monzonite with some limestone (may be mixed from layer above). (STOCKPILE MATERIAL)



	SAMPLES
NO.	DESCRIPTION
GH5-2 0"-6"	OXIDIZED SURFACE
GH5-2 4'-8'	CRUSHED LIMESTONE
GH5-2 12'-20'	QUARTZ MONZONITE

SPECIAL NOTES:

DRY HOLE

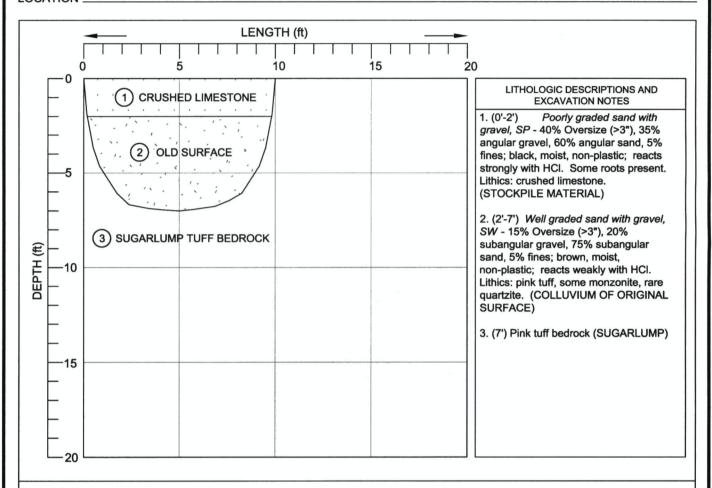
DID NOT REACH UNDERLYING MATERIALS BELOW OLD SURFACE

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FIELD TEST PIT LOG

TEST PIT GH5-3

TEMP 40 °F WEATHER SUNNY ENGINEER JEN PEPE OPERATOR EDDIE JOHNSON
EQUIPMENT PC22 OLC TRACKHOE CONTRACTOR HAMILTON DATE 11/10/04
ELEVATION DATUM JOB 953-1072-030
LOCATION NORTH TOP OF STOCKPILE NEAR OLD CUT/FILL CONTACT





	SAMPLES
NO.	DESCRIPTION
GH5-3 0-2'	STOCKPILE-LIMESTONE
GH5-3 -3A	BFD
SPECIAL NOTES:	
DRY HOLE	

MET REFUSAL @ 7'

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APPENDIX B

LABORATORY DATASHEETS

APPENDIX B-1

SVL ANALYTICAL DATASHEETS

PHELPS DODGE - CHINO

ATTN: Pam Pinson

Project: LUCKY BILL CANYON

GROUNDHOG

STOCKPILE No. 5

SVL/SDG: 114590

PHELPS DODGE - CHINO MINE PROJECT: LUCKY BILL CANYON

SVL/SDG: 114590

	DOCUMENT	PAGE NUMBERS	ì
	Cover Page	1	1
SDG: 114590	Data Report Forms	2	28
	Raw Data	29	73
	Preparation Logs	74	75
	*Air Bill	76	76
	*Chain of Custody	77	78
	Sample Log-In	79	79
	*Cover Sheet	80	80
	*Cooler Receipt Forms	81	81
	Run Logs	82	86
	Confirmation	87	88
Sieve/pH/TOX	Data Report Forms	89	91
·	Raw Data	92	140



NARRATIVE

PHELPS DODGE - CHINO MINE

Project: LUCKY BILL CANYON

GROUNDHOG STOCKPILE NO. 5

SVL/SDG: 114590

Sample was received for metals and non-metals.

Arsenic and selenium are flagged with an "N" on Forms 1 and 5A.

"N"flag represents the spike recovery is out of the control limits of 75-125% and the spike add is greater than or equal to ¼ of the sample result.

Calcium, potassium and sodium on Forms 1 and 9 are flagged with an "E".

"E" flag represents the percent difference of the serial dilution is greater than 10% and the original sample concentration (reported on Form 1) is greater than 50X the IDL reported on Form 10.

Sample for selenium is flagged with a W (Form 1).

"W" flag represents the post digestion spike for Furnace AA

analysis is out of the control limits of 85-115%, while
sample absorbance is less than 50% of spike absorbance.

(certificate no.: AZ0538)

U.S. EPA - CLP

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

I つり Name: SVL_A	NALYTICAL_INC	Contract:	
Lab Code: SILVI	R Case No.:	SAS No.:	SDG No.: 114590
SOW No.: ILM04			
	EPA SAMPLE NO. _W427906	Lab Sample ID <u>W427906</u> <u>W427906S</u> <u>W427906D</u>	
			_
!			
			
			
			
			
V re ICP inter∈	element corrections a	applied ?	— Yes/No YES
 Were ICP backgr	ound corrections app	olied ?	Yes/No YES
If yes - v application	vere raw data generat on of background corr	ted before rections ?	Yes/No NO_
Comments: PROJECT: LU	JCKY_BILL_CANYONGF	ROUNDHOG STOCKPILE N	10.5
	CKY BILL CANYON		E" ON FORM 9 AND 1'S
conditions of to the than the in this hardcor on floppy diske	this data package is the contract, both to conditions detailed by data package and is the has been authorized, as verified by	echnically and for o above. Release of in the computer-read ized by the Laborato	completeness, for the data contained dable data submitted bry Manager or the
Signature:(Julia Carall	Name: MELBA	BENCICH
Date:	DECEMBER 22, 2004	Title: DOCUM	MENT CONTROL OFFICER
K1	FISH STAY	COVED DAGE TV	TT360.4 1
	~	COVER PAGE - IN	ILM04.1

U.S. EPA - CLP

	1		
INORGANIC	ANALYSES	DATA	SHEET

CLIENT	SAMPLE	NΩ
	OUT TIE	TAC

Nome CVI	3 3 1 3 T 37 T T C 3 T	TNO	Contract			W427906
Name: SVI	ANALYTICAL		Contract:			1
Code: SII			_ SAS No:			No: 114590
	water): WAT					le ID: W4279 <u>06</u>
el (low/me				Da	te Rec	eived: 11/12/04
olids:	0	.0				
						
C	Concentration	n Units (ug,	/L or mg/kg dry	y w	eight)	: UG/L_
	1			П		
	CAS No.	Analyte	Concentration	C	Q	M
	7429-90-5	Aluminum	12.1	77 -		P
		Antimony	3.8			P-
	7440-38-2	Arsenic	0.68	<u>~</u> .	. WN	F-
	7440-43-9	Cadmium	0.60		·	P
		Cadillium				15-1
		Calcium	55300	. ا چپ ا	E	P_
		Chromium	0.30	<u> U </u> .		P_
		Cobalt	0.50	ן טן.		P_
	7440-50-8	Copper	5.9	B		P_
	7439-89-6	Iron	23.0			P
	7439-92-1	Lead	1.1	BI.		[F ⁻]
	7439-95-4	Magnesium_	15000	-		[P_]
	7439-96-5	Manganese	11.2	[표]	· · · · · · · · · · · · · · · · · · · 	P
	7440-02-0	Nickel	1.8	_ -		P
		Potassium	5000	~ ·	E	P_
			0.80	-	<u>wn</u>	F-
	7782-49-2	Sefeurnui-	70.00	١٠١.		[
	7440-23-5	Soaium	36000	<u>_</u> -	E	P_ P_
	7440-66-6	Zinc	107	_ .		P_
	7439-98-7	Molybdenum	9.2	ll.		P_
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r Before:	COLORLESS	Clarit	y Before: CLEA	١R		Texture:
	COLORLESS	Clarit	y After: CLEA	\		
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or mircor.						
ments:						
ments:	_GH#5_@LUCK	Z_BILL			· ·-	

FORM I - IN

ILM04.1

Certificate: ID ID00019 One Government Gulch P.O. Box 929 Kellogg, Idaho 83837-0929 Phone: (208)784-1258 a Fax: (208)783-0891

CLIENT: Phelps Dodge - Chino Mine

SVL JOB: 114590 SAMPLE: 427905

PROJECT: G04880 CLIENT SAMPLE ID: GH#5@LUCKY BILL

TOT/DIS

Sample Collected: 11/10/04 15:00
Sample Receipt: 11/12/04
Date of Report: 12/22/04 Matrix: WATER

	Determination	Result	Units	Dilution	Method	Analyzed
T	ALKALINITY	144	mg CaCO3		2320B	11/18/04
T	CO3, CaCO3	<1.0	mg CaCO3	/L	2320B	11/18/04
T	HCO3, CaCO3	144	mg CaCO3	/L	2320B	11/18/04
T	pН	6.83	_		150.1	11/18/04
T	TDS	391	mg/L		160.1	11/17/04
T	Chloride	8.72	mg/L		300.0	11/23/00
T	Fluoride	0.25	mg/L		300.0	11/23/00
T·	Sulfate, SO4	122	mg/L	10	300.0	11/23/00

Filtered fraction: 427906 SAMPLE ID TAKEN FROM LABEL

Reviewed By:

Date /2

Quality Control Report Part I Prep Blank and Laboratory Control Sample

Client : Phelps Dodge - Chino Mine SVL JOB No:								
Analyte	Method	Matrix	Units	Prep Blank	True	LCS Found	LCS %R	Analysis Date
Chloride Fluoride Sulfate, SO4 ALKALINITY pH TDS	300.0 300.0 2320B 150.1	WATER WATER WATER WATER WATER WATER	mg/L mg/L mg/L mg/L	<0.20 <0.10 <0.30 <1.0 5.89 <10	5.00 2.50 10.0 90.0 5.40 362	4.76 2.41 9.80 91.7 5.40 414	95.2 96.4 98.0 101.9 100.0 114.4	11/23/00 11/23/00 11/23/00 11/18/04 11/18/04 11/17/04

LEGEND:

LCS = Laboratory Control Sample

LCS %R = LCS Percent Recovery

N/A = Not Applicable

_	nt :Phelps I	—QĆ SAMPI		Duplicate Found	or MSD RPD%	Ma Result	SVI trix Spike SPK ADD		n: 114590 Analysis Date
Cl F SO4 ALK CO3 HCO3 PH TDS	300.0 W 1 300.0 W 1 300.0 W 1 2320B W 1 2320B W 1 2320B W 1 150.1 W 1	mg/L mg/L mg/L mg/L mg/L mg/L	8.72 0.25 122 144 <1.0 144 6.83 391	8.81 0.23 124 143 <1.0 143 6.66 375	1.0 8.3 1.6 0.7 UDL 0.7 2.5 4.2	17.7 2.22 174 N/A N/A N/A N/A	10.0 2.00 50.0 N/A N/A N/A N/A	98.5 104.0	11/23/00 11/23/00 11/23/00 11/18/04 11/18/04 11/18/04 11/18/04 11/17/04

LEGEND:

RPD% = (|SAM - DUP|/((SAM + DUP)/2) * 100) UDL = Both SAM & DUP not detected. *Result or *Found: Interference required dilution. RPD% = (|SPK - MSD|/((SPK + MSD)/2) * 100) M in Duplicate/MSD column indicates MSD.

SPIKE ADD column, A = Post Digest Spike; R = Percent Recovery N/A = Not Analyzed; <math>R > 4S = Result more than 4X the Spike Added QC limits for MS recoveries apply only if the spike is at least 1/4 the concentration of the analyte in the sample.

Control limits for the RPD apply only if the concentration of the analyte in the sample is at least five times the reporting limit. QC Sample 1: SVL SAM No.: 427905 Client Sample ID: GH#5@LUCKY BILL ^T

145,10

14.80 Chain of Custody Record Cooler Temp Page 1 of 1 COC No. PamPinson11-11-04 Project Name **Analytical Parameters** Lucky Bill Canyon-Groundhog Stockpile No. 5 **Project Manager** As per Golder's (Jen Pepe's) instructions Chino Mines Company Project Location: Lucky Bill Canyon Pam Pinson ELWD. P.O. Box 7 Sampler(s): Hurley, N.M. 88043 Matrix Sample Type Sample Identification No. of 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 Date time Grab (Field ID) Containers 1 Chain of Custody Seal# *********** 9:10 GH5-1 0-2' rock soil/chip 1 x х * Sample bottle *********** 9:50 X GH5-1 4' rock soil/chip х Foods- 6145 11:00 GH5-1 6-10' rock soli/chip х @ Lucky Bill ************ 11:00 GH5-1 12-16' 1 х rock soll/chip 11/10/04 1500 11:00 GH5-1 18-20' 1 x rock soll/chip *************** Water unfiltered 500 ml VIC 11-12-04 15:00 Water х ############ 15:00 Water w/HNO Water 500 ml 4 Sample wotthe Reads 645 @ Lucker bill 11/10/04 1580 KLS 11-12-04 Special Instructions

Per Jen Pefe:

Lun diss. Or since

HNOs sample is filtered.

90

11/17/04 Date & Time **Shipping Details Signatures** Relinquished by: 교 37 Method of Shipment: **UPS RED** 11-12-04 3:20 Airbill No. Received by: Relinguished by: Lab Addresses: ATTN: Chris Myer Received for Laboratory by: Phone: 208-784-1258 One Government Gulch Fax: 208-783-0891 Kellogg, ID 83837-0929

SVL ANALY' \L, INC.

One Government Gulch - Kellogg, ID 83837-0929

CLIENT: Pam Pinson

Phelps Dodge - Chino Mine

PO Box 7

SAMPLE RECEIPT CONFIRMATION

SVL JOB No: Received:

Ρŧ

114590 11/12/04

Expected Due date:

11/30/04

1 of 1

Hurley

NM 88043

FAX: (505)537-8012

114590

SVL# M	ClientID	Sampled Tir	ве Ву	Received	Sample Comments
		11/10/04 15:0 11/10/04 15:0		11/12/04 11/12/04	SAMPLE ID TAKEN FROM LABEL

*We track Total (^T), Tot. Rec. (^R), Pot. Diss. (^P) and Dissolved (^D) fractions separately. Field samples may appear twice.

ADDITIONAL COMMENTS FOR JOB: Sample Cooler temp: 14°C.

11/17/04 11:05

[[]X] These samples will be DISPOSED 30 days after job completion.

^[] These samples will be ARCHIVED 30 days, then you will receive a letter requesting disposal options.

PHELPS DODGE - CHINO

ATTN: Pam Pinson

Project: LUCKY BILL CANYON

GROUNDHOG

STOCKPILE No. 5

SVL/SDG: 114620

PHELPS DODGE - CHINO MINE PROJECT: LUCKY BILL CANYON

SVL/SDG: 114620

	DOCUMENT	PAGE NUMBER	<u> </u>
	Cover Page	1	1
SDG: 114620	Data Report Forms	2	46
	Raw Data	47	121
	Preparation Logs	122	124
	*Air Bill	125	127
•	*Chain of Custody	128	130
	Sample Log-in	131	131
	*Cover Sheet	132	132
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	Run Logs	134	137
	Confirmation	138	139
Sieve/pH/TOX	Data Report Forms	140	151
•	Raw Data	152	218



NARRATIVE

PHELPS DODGE - CHINO MINE

Project: LUCKY BILL CANYON

GROUNDHOG STOCKPILE NO. 5

SVL/SDG: 114620

Samples were received for SPLP extraction; metals and non-metals analyzed.

Note: The metals are reported as ug/L.

Samples GH%-2 0-6" and GH5-2 4-8" for selenium are flagged with a W (Form 1).

"W" flag represents the post digestion spike for Furnace AA analysis is out of the control limits of 85-115%, while sample absorbance is less than 50% of spike absorbance.

(certificate no.: AZ0538)

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Code: SILVER Cas SOW No.: ILM04 EPA SAMP _E418164 _E418165	LE NO.	Lab Sample ID _E428164 _E428165	SDG No.: 1	14620
EPA SAMP _E418164 _E418165		E428164		
_E418164 _E418165		E428164		
E418166E418167E418168E418169E418171E418172E418173E418165		E428166 E428167 E428168 E428169 E428170 E428171 E428172 E428173 E428165S E428165D		
Wore ICP interelement c	orrections appli	ed ?	Yes/No	YES
Were ICP background cor			Yes/No	YES
If yes - were raw application of bac	kground correcti	ons ?	Yes/No	ио_
Comments: PROJECT: LUCKY_BILL LUCKY_BILL CLIENT IDENTIFICATI	CANYON			
I certify that this dat conditions of the controther than the condition in this hardcopy data pon floppy diskette has Manager's designee, as Signature:	act, both technins detailed above ackage and in the been authorized	cally and for comple. Release of the e computer-readable by the Laboratory Modellowing signature	eteness, for data contain data submit danager or t	ined itted
	Cyrei C	Name: MELBA BI		
Date: DECEMBER 2 KIRBY GRAY	uay	Title: DOCUMENT CO	ONTROL OFFI	

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CLIENT	SAMPLE	NO
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		INORGANIC A	ANALYSES DATA S	SHEET	1	· · · · · · · · · · · · · · · · · · ·
o Name: SVL b Code: SIL	_ANALYTICAL VER Case	INC.	Contract: SAS No:		E4	18164
	water): WAT	ER	_ 383 NO	Lab Sa	mple ID:	E428164 11/12/04
Co	oncentration	n Units (ug,	/L or mg/kg dry	y weigh	t): UG/I	· _
	CAS No.	Analyte	Concentration	C Q	М	
	7440-38-2 7440-43-9 7440-70-2 7440-47-3 7440-50-8 7439-89-6 7439-95-4 7439-96-5 7440-02-0 7440-09-7 7782-49-2 7440-23-5	Magnesium Manganese Nickel Potassium Selenium	60.4 3.8 0.60 0.20 11300 0.30 0.50 0.40 5.9 1.3 759 0.60 1.7 1220 0.80 409 0.52	000 000 000 000 000 000 000 000 000 00	P P F P P P P P P P P P P P P P P P P P	
	7439-98-7_	Molybdenum	6.1		P_	
or Before: or After:	COLORLESS	Clarit	y Before: CLEA		Textu	

Color Before: Color After:	COLORLESS	Clarity Before: Clarity After:		Texture: Artifacts:	
Comments: CLIENT_ID:_(SPLP EXTRACT		····			·
<u>-</u>		FORM I - IN			ILM04.1

1 INORGANIC ANALYSES DATA SHEET

CLIENT S	AMPLE	NO
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		INOROIMVIC I	TANDIODO DATA	311111	E418165
Lab Name: SVL Lab Code: SIL	ANALYTICAL	INC.	Contract:		21.0.05
Lab Code: SIL	VER Case	No:	SAS No:	SDG	No: 114620
Matrix (soil/				Lab Samp	le ID: E428165
Level (low/me					eived: 11/12/04
% Solids:	0	. 0			•
C	oncentration	n Units (ug,	/L or mg/kg dry	y weight):	: UG/L_
	CAS No.	Analyte	Concentration	C Q	М
	7429-90-5	Aluminum	145	B	P
		Antimony	3.8	ן ט	P_
	7440-38-2	Arsenic -	0.60	ט	F
	7440-43-9	Cadmium	0.20	ט –	P
	7440-70-2	Calcium	8820		_P _
	7440-47-3	Chromium	0.30	\overline{v}	F_ P_ P_ P_
		Cobalt	0.51		I P I
	7440-50-8	Copper	0.40	υ 	_P_
	7439-89-6	Iron	5.9		P .
	7439-89-6_ 7439-92-1_	Lead	0.85	В	_F
	7439-95-4	Magnesium	987	В ——	P_
		Manganese	0.60	ט	P-
	7440-02-0		1.7	ט	P
	7440-09-7		1230	В ——	P_ P_ P_ F_ P_
	7782-49-2		0.80	ט	F
	7440-23-5		275		P-
	7440-66-6		0.34		P
	7439-98-7	Molybdenum	5.2		P-
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Color Before:		Clarit	y Before: CLEA	AR_	Texture:
Color After:	COLORLESS	Clarit	y After: CLEA	AR_	Artifacts:
Comments: CLIENT_ID: SPLP EXTRA	_GH5-1_4'				
		FC	DRM I - IN		ILM04.

<u>ILM0</u>4.1

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INORGANIC	ANALYSES	DATA	SHEET

CAS No.
Color Before: COLORLESS Clarity Before: CLEAR Texture: Color After: COLORLESS Clarity After: CLEAR Artifacts: CLIENT_ID: GH5-1_6-10'

FORM I - IN

		INORGANIC A	1 ANALYSES DATA :	SHE	ΕŤ	CLIENT SAMPLE	10
l , Name: SVL Lab Code: SIL Matrix (soil/ Level (low/me % Solids:	VER Case water): WATI	_INC No: ER		La	SDG D Samp	E418167 No: 114620 le ID: E428167 eived: 11/12/04	_
С	oncentration	n Units (ug,	/L or mg/kg dry	y w	eight) ———	: UG/L_	
	CAS No.	Analyte	Concentration	c	Q	м	
	7440-38-2 7440-43-9 7440-70-2 7440-47-3 7440-48-4 7440-50-8 7439-98-6 7439-95-4 7439-96-5 7440-02-0 7440-09-7 7782-49-2 7440-66-6 7439-98-7	Antimony Arsenic Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Nickel Potassium Selenium Zinc Molybdenum					
Color Before:	COLORLESS	Clarit	y Before: CLEA	R_		Texture:	_

Color After: COLORLESS	Clarity After:	Artifacts:	
Comments: CLIENT_ID:_GH5-1_12-16' SPLP_EXTRACTION			
	FORM I - IN	ILMO	4.1

U.S. EPA - CLP

INORGANIC ANALYSES DATA SHEET

		INORGANIC .	ANALYSES DATA	SHEET	1
لـــى Name: SVL	_ANALYTICAL_	_INC	Contract: _		E418168
Lab Code: SIL	VER Case	No:	SAS No:	S	DG No: 114620
Matrix (soil/	water): WAT	ER		Lab Sa	mple ID: E428168
Level (low/med				Date R	eceived: 11/12/04
% Solids:	-	.0			0001.001, 12, 01
	 _				
Co	oncentration	n Units (ug	/L or mg/kg dr	y weigh	t): UG/L_
	GNG N-	21	Cara-at-at-at-	0 0	<u> </u>
	CAS No.	Analyte	Concentration	C Q	M
	7429-90-5	Aluminum	1280	-	
	7440-36-0	Antimony		[]	— P P
	7440-38-2	Arsenic	3.8	j	
	7440-33-2		0.20	[문]	^F P-
		Cadmium			—[<u>-</u> -]
	1	Calcium	6570		P
		Chromium_	0.42		P
	7440-48-4		0.60	B	
	7440-50-8	Copper	5.2	В	P
	7439-89-6	Iron	771	 _ _ _ _ 	— P
	7439-92-1	Lead	3.7	-	F-
		Magnesium	1200	 	_P
	7439-96-5	Manganese	24.7		_
			1.7		5
	7440-02-0				P P
		Potassium_	691	B	P
	7782-49-2	Selenium	0.80		F
	7440-23-5	Sodium	4070	В	P_
	7440-66-6	Zinc	9.5	В ——	_P
		Molybdenum		в	— P-
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Color Before:	COLORLESS	Clarit	y Before: CLEA	\R	Texture:
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COTOL WILET:	COTOVIESS	CIAII	.Y WICEI. CDEL	<u>"`</u>	ALCITACES.
Tommonto:					
Comments:	OTTE 1 10 00	n 1			
CTTENT_TD:	_GH5-1_18-20)			
SPLP_EXTRAC	CTION	<u></u>			
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CLIENT	SAMPLE	NO
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		INORGANIC A	ANALYSES DATA	SHE	ET	I
o Name: SVT.	ANALYTICAL.	INC.	Contract: _			E418169
Code: SIL	VER Case	_NO:	SAS No:		<u> </u>	No: 114620
rix (soil/vel (low/med Solids:	water): WAT d): LOW	ER	_ 385 NO	La Da	b Samp	le ID: E428169 eived: 11/12/04
C	oncentration	n Units (ug	/L or mg/kg dr	y w	eight)	: UG/L_
	CAS No.	Analyte	Concentration	С	Q	м
	7429-90-5	Aluminum	12.1	ᆔ		- -
	7440-36-0	Antimony	3.8			A
	7440-38-2	Arsenic Arsenic	0.60	11		- -
		Cadmium	0.38			- -
		Calcium	128000			_ _
			0.30	77		2
		Chromium	0.50	;;		5
		Cobalt	0.30			
		Copper				=
	7439-89-6_	Iron	6.5	151		[본_]
	7439~92-1	Lead		밥		<u>F</u> _
	7439-95-4	Magnesium	1510	B		P_
	7439-96-5	Manganese_	46.2	lI		P_
	7440-02-0		1.7			P_
			2000			P_
	7782-49-2	Selenium -	0.80		W	F
	7440-23-5	Sodium	876	вГ		P_
	7440-66-6	Zinc	1.6	B		P_
		Molybdenum				P-
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or Before: or After:	COLORLESS COLORLESS		y Before: CLEA y After: CLEA	NR_ NR_		Texture: Artifacts:
ments: CLIENT ID:	GH5-2 0-6"			_ -		

SPLP_EXTRACTION__ FORM I - IN ILM04.1

CLIENT	SAMPLE	NO
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		INORGANIC A	ANALYSES DATA	SHE	EET	CLIENT SAMPLE
D Name: SVL b Code: SILV trix (soil/w vel (low/med Solids:	VER Case Vater): WATI LOW0	No: ER .0	_ SAS NO:	Da	ab Samp ate Rec	E418170 No: 114620 le ID: E428170 eived: 11/12/04
Co			/L or mg/kg dr			
	CAS No.	Analyte	Concentration	C	Q	M
	7440-36-0 7440-38-2 7440-43-9 7440-47-3 7440-48-4 7440-50-8 7439-89-6 7439-95-4 7439-96-5 7440-02-0 7440-09-7 7782-49-2 7440-66-6	Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Nickel Potassium Selenium Sodium	84.8 3.8 0.86 0.20 99000 0.30 0.51 0.40 6.8 1.1 4690 6.5 1.7 2360 0.80 445 0.30 10.1	UBU UBUBBBBUBU		
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lor Before: lor After:	COLORLESS COLORLESS		y Before: CLEA y After: CLEA			Texture: Artifacts:
mments: CLIENT ID: SPLP EXTRAC	GH5-2_4-8"_					

FORM I - IN

		U.S.	EPA - CLP					,
		INORGANIC A	1 ANALYSES DATA S	SHEET	r	CLIENT	SAMPLE	NO.
Lab Name: SVL Lab Code: SIL Matrix (soil/v Level (low/med % Solids:	VER Case water): WATI d): LOW0	No:	Contract:SAS No:	Date	Sampl Rece	E418 No: 11. e ID: E. ived: 1	4620 428171	
	7440-38-2 7440-43-9 7440-70-2 7440-47-3 7440-48-4	Analyte Aluminum Antimony Arsenic Cadmium Calcium Chromium Cobalt Copper	Concentration 98.3 3.8 3.1 0.20 21800 0.30 0.50 0.40	BUBB UU		M P P P P P		

		l —————			
7439-89-6	Iron	5.9	U		P_
7439-92-1	Lead	0.93	В	l——	F
7439-95-4	Magnesium	2260	В	1	P_
7439-96-5	Manganese	8.6	В		P^-
7440-02-0	Nickel -	1.7	U		$ P^- $
7440-09-7	Potassium	2950	lв		$ P^- $
7782-49-2	Selenium	0.80	שו		F-1
7440-23-5	Sodium	1020	В		P_ P_ P
7440-66-6	Zinc	0.30	ΙŪ		- -
7439-98-7	Molybdenum	12.0	ľ		- -
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	Before: After:	COLORLESS COLORLESS	Clarity Clarity	Before: After:	CLEAR_ CLEAR_	Texture: Artifacts:	:
Commer CLI SPI		GH5-2_12-20' TION			····		
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U.S. EPA - CLP

1 INORGANIC ANALYSES DATA SHEET

CLIENT	SAMPLE	NΩ
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rix (soil/water): rel (low/med): Solids:	0 <u>.0</u>	or/T or maybe dry	Dat	te Rec	le ID: E428172 eived: 11/12/04
CAS No.	Analyte	Concentration		Q Q	T _M
7429-90 7440-36 7440-38 7440-43 7440-70 7440-47 7440-48 7440-50 7439-89 7439-95 7439-95 7440-02 7440-02 7440-03	Aluminum Antimony Arsenic Gadmium Calcium Calcium Cobalt Copper Iron Lead Magnesium Manganese Nickel Potassium Selenium Sodium Ton Molybdenu	155 4.8 0.80 0.22 7950 0.30 0.50 0.40 5.9 1.1 908 0.84 1.7 1200 0.80	BBBB UUUUBBBUBUBUBUB		P

FORM I - IN

ILM04.1

U.S. EPA - CLP

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INORGANIC	ANALYSES	DATA	SHEET

CLIENT	SAMPLE	NO
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		INORGANIC A	ANALYSES DATA	SHEET	
	1111 T IV		~		E418173
لس Name: SVL	ANALYTICAL	_INC	Contract: _		<u> </u>
Lab Code: SIL			_ SAS No:	SDG	No: 114620
Matrix (soil/				Lab Samp	le ID: E428173
Level (low/me % Solids:		. 0		Date Rec	eived: 11/12/04
& Solius.	0	. 0			
C	oncentration	n Units (ua	/L or mg/kg dry	v weight)	· UC/I
Ì	011001111111111	ir onitto (ug)	i or mg/kg ar	y weight,	. 00/11_
		l			
	CAS No.	Analyte	Concentration	C Q	М
ı	B 700		<u> </u>	_	<u> </u>
	7429-90-5		196	B	P_
İ		Antimony	3.8	U	P_
		Arsenic	0.60	U	F_
1		Cadmium	0.20		P_ P_ P_
	7440-70-2	Calcium	7250		P_
	7440-47-3	Chromium	0.32	B	_P _
	7440-48-4	Cobalt —	0.57	В ———	P
	7440-50-8	Copper	0.40	₁₁	-
	7439-89-6	Iron	5.9		 -
			0.93	 	P- P- F-
	7439-95-4		838		P_
	7439-96-5	Magnesium_		 	-
	1439-90-5	Manganese_	0.60		P P
	7440-02-0		1.7		<u> P_ </u>
	7440-09-7		1260		P F
	7782-49-2	Selenium	0.80		[F_
	7440-23-5		329		P
•	7440-66-6	Zinc	0.30	ט –	P-
	7439-98-7	Molybdenum		B	P_
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Color Before:	COLORLESS	Clarit	y Before: CLEA	\R	Texture:
Color After:	COLORLESS	Clarit	y After: CLEA		Artifacts:
COTOL WILEI!	COHORDESS	CIAIII	'A WICEI' CPEL	<u> </u>	ALCITACES.
Commonts:					
Comments:	מטב ז אי				
CLIENT ID:	-GETON 3A		· · · · · · · · · · · · · · · · · · ·		
SPLP_EXTRA	_TION				

Certificate: ID ID00019 One Government Gulch P.O. Box 929 Kellogg, Idaho 83837-0929 Phone: (208)784-1258 **a** Fax: (208)783-0891

CLIENT : Phelps Dodge - Chino Mine

PROJECT: G04880 CLIENT SAMPLE ID: GH5-1 0-2'

Sample Collected: 11/10/04 9:10 Sample Receipt: 11/12/04 Date of Report: 12/22/04

SVL JOB: 114620 SAMPLE: 428164

Matrix: ESOIL

Extraction: SPLP

Result	Units	Dilution	Method	Analyzed
18.3	mg CaCO3	/L	2320B	12/06/04
<1.0	mg CaCO3	/L	2320B	12/06/04
18.3	mg CaCO3	/L	2320B	12/06/04
6.28	_		150.1	12/06/04
5060	mg/L Ext		160.1	12/03/04
0.21	mg/L Ext		300.0	12/07/04
0.11	mg/L Ext		300.0	12/07/04
16.3	mg/L Ext		300.0	12/07/04
	18.3 <1.0 18.3 6.28 5060 0.21 0.11	18.3 mg CaCO3 <1.0 mg CaCO3 18.3 mg CaCO3 6.28 5060 mg/L Ext 0.21 mg/L Ext 0.11 mg/L Ext	18.3 mg CaCO3/L <1.0 mg CaCO3/L 18.3 mg CaCO3/L 6.28 5060 mg/L Ext 0.21 mg/L Ext 0.11 mg/L Ext	18.3 mg CaCO3/L 2320B <1.0 mg CaCO3/L 2320B 18.3 mg CaCO3/L 2320B 6.28 150.1 5060 mg/L Ext 160.1 0.21 mg/L Ext 300.0 0.11 mg/L Ext 300.0

Reviewed By:

Date 12/22/04

One Government Gulch P.O. Box 929 M Kellogg, Idaho 83837-0929 M

Certificate: ID ID00019 Phone: (208)784-1258 • Fax: (208)783-0891

CLIENT: Phelps Dodge - Chino Mine PROJECT: G04880

CLIENT SAMPLE ID: GH5-1 4'

9:50

Sample Collected: 11/10/04 Sample Receipt: 11/12/04 Date of Report: 12/22/04

SVL JOB: 114620

SAMPLE: 428165

Matrix: ESOIL

Extraction: SPLP

Determination	Result	Units	Dilution	Method	Analyzed
ALKALINITY	21.8	mg CaCO3	/L	2320B	12/06/04
CO3, CaCO3	<1.0	mg CaCO3	/L	2320B	12/06/04
HCO3, CaCO3	21.8	mg CaCO3	/L	2320B	12/06/04
рH	6.40			150.1	12/06/04
TDS	60	mg/L Ext		160.1	12/03/04
Chloride	0.22	mg/L Ext		300.0	12/07/04
Fluoride	0.16	mg/L Ext		300.0	12/07/04
Sulfate, SO4	9.93	mg/L Ext		300.0	12/07/04

Reviewed By:_

Date 12/22/04 12/22/04 14:50

Certificate: ID ID00019 One Government Gulch P.O. Box 929 Kellogg, Idaho 83837-0929 Phone: (208)784-1258 • Fax: (208)783-0891

CLIENT: Phelps Dodge - Chino Mine PROJECT: G04880 CLIENT SAMPLE ID: GH5-1 6-10' Sample Collected: 11/10/04 11:00 Sample Receipt: 11/12/04 Date of Report: 12/22/04

SVL JOB: 114620 SAMPLE: 428166

Matrix: ESOIL

Extraction: SPLP

Result	Units	Dilution	Method	Analyzed
29.4	mg CaCO3	3/L	2320B	12/06/04
<1.0	mg CaCO3	B/L	2320B	12/06/04
29.4	mg CaCO3	B/L	2320B	12/06/04
6.39			150.1	12/06/04
55	mg/L Ext	:	160.1	12/03/04
<0.20	mg/L Ext	-	300.0	12/07/04
<0.10	mg/L Ext	:	300.0	12/07/04
3.67	mg/L Ext	<u>.</u>	300.0	12/07/04
	29.4 <1.0 29.4 6.39 55 <0.20 <0.10	29.4 mg CaCO3 <1.0 mg CaCO3 29.4 mg CaCO3 6.39 55 mg/L Ext <0.20 mg/L Ext <0.10 mg/L Ext	29.4 mg CaCO3/L <1.0 mg CaCO3/L 29.4 mg CaCO3/L 6.39 55 mg/L Ext <0.20 mg/L Ext <0.10 mg/L Ext	29.4 mg CaCO3/L 2320B <1.0 mg CaCO3/L 2320B 29.4 mg CaCO3/L 2320B 6.39 150.1 55 mg/L Ext 160.1 <0.20 mg/L Ext 300.0 <0.10 mg/L Ext 300.0

Reviewed By: Kirly Than

____Date 12/2

Certificate: ID ID00019

One Government Gulch P.O. Box 929 Kellogg, Idaho 83837-0929 B Phone: (208)784-1258 • Fax: (208)783-0891

CLIENT: Phelps Dodge - Chino Mine PROJECT: G04880 CLIENT SAMPLE ID: GH5-1 12-16' Sample Collected: 11/10/04 11:00 Sample Receipt: 11/12/04 Date of Report: 12/22/04

SVL JOB: 114620 SAMPLE: 428167

Matrix: ESOIL Extraction: SPLP

Determination	Result	Units	Dilution	Method	Analyzed
ALKALINITY	44.4	mg CaCO3	I/L	2320B	12/06/04
CO3, CaCO3	<1.0	mg CaCO3	5/L	2320B	12/06/04
HCO3, CaCO3	44.4	mg CaCO3	I/L	2320B	12/06/04
Hq	6.52	_		150.1	12/06/04
TDS	99	mg/L Ext	.	160.1	12/03/04
Chloride	<0.20	mg/L Ext		300.0	12/07/04
Fluoride	0.29	mg/L Ext		300.0	12/07/04
Sulfate, SO4	7.74	mg/L Ext		300.0	12/07/04

Reviewed By:

Certificate: ID ID00019

One Government Gulch P.O. Box 929 Kellogg, Idaho B3837~0929 Phone: (208)784-1258 • Fax: (208)783-0891

CLIENT: Phelps Dodge - Chino Mine PROJECT: G04880

CLIENT SAMPLE ID: GH5-1 18-20' Sample Collected: 11/10/04 11:00 Sample Receipt: 11/12/04 Date of Report: 12/22/04

SVL JOB: 114620

SAMPLE: 428168

Matrix: ESOIL Extraction: SPLP

	Determination	Result	Units	Dilution	Method	Analyzed
	ALKALINITY	25.0	mg CaCO3/	L	2320B	12/06/04
-	CO3, CaCO3	<1.0	mg CaCO3/	L	2320B	12/06/04
ì	HCO3, CaCO3	25.0	mg CaCO3/	L	2320B	12/06/04
	рĦ	6.32			150.1	12/06/04
i	TDS	69	mg/L Ext		160.1	12/03/04
	Chloride	0.78	mg/L Ext		300.0	12/07/04
	Fluoride	0.39	mg/L Ext		300.0	12/07/04
	Sulfate, SO4	4.52	mg/L Ext		300.0	12/07/04
Ь.,						

Reviewed By:

__Date_*/*_

Certificate: ID ID00019

Phone: (208)784-1258 • Fax: (208)783-0891

CLIENT : Phelps Dodge - Chino Mine

One Government Gulch P.O. Box 929 Kellogg, Idaho 83837-0929

PROJECT: G04880

CLIENT SAMPLE ID: GH5-2 0-6"

Sample Collected: 11/10/04 11:45 Sample Receipt : 11/12/04 Date of Report : 12/22/04

SVL JOB: 114620

SAMPLE: 428169

Matrix: ESOIL Extraction: SPLP

Determination	Result	Units	Dilution	Method	Analyzed
ALKALINITY	30.3	mg CaCO3/L	,	2320B	12/06/04
CO3, CaCO3	<1.0	mg CaCO3/L	,	2320B	12/06/04
HCO3, CaCO3	30.3	mg CaCO3/L	,	2320B	12/06/04
Hq	6.21			150.1	12/06/04
TDS	537	mg/L Ext		160.1	12/03/04
Chloride	<0.20	mg/L Ext		300.0	12/07/04
Fluoride	0.29	mg/L Ext		300.0	12/07/04
Sulfate, SO4	315	mg/L Ext	25	300.0	12/07/04

Reviewed By:_

Date 12/22/04 14:51

Certificate: ID ID00019

Phone: (208)784-1258 Fax: (208)783-0891

CLIENT: Phelps Dodge - Chino Mine

One Government Gulch
P.O. Box 929
Kellogg, Idaho 83837-0929

PROJECT: G04880
CLIENT SAMPLE ID: GH5-2 4-8"
Sample Collected: 11/10/04 13:34
Sample Receipt : 11/12/04
Date of Report : 12/22/04

SVL JOB: 114620 SAMPLE: 428170

Matrix: ESOIL Extraction: SPLP

Determina	tion	Result	Units	Dilution	Method	Analyzed
ALKALINIT	Y	12.2	mg CaCO3	/L	2320B	12/06/04
CO3, CaCO	3	<1.0	mg CaCO3	/L	2320B	12/06/04
HCO3, CaC	03	12.2	mg CaCO3	/L	2320B	12/06/04
Hq		6.31	_		150.1	12/06/04
TDS		445	mg/L Ext		160.1	12/03/04
Chloride		<0.20	mg/L Ext		300.0	12/07/04
Fluoride		0.41	mg/L Ext		300.0	12/07/04
Sulfate,	SO4	268	mg/L Ext	25	300.0	12/07/04

Reviewed By: Linky Sney

Date 12/22/04 14:51

Certificate: ID ID00019

One Government Gulch . P.O. Box 929 . Kellogg, Idaho 83837-0929 . Phone: (208)784-1258 . Fax: (208)783-0891

CLIENT : Phelps Dodge - Chino Mine

PROJECT: G04880

CLIENT SAMPLE ID: GH5-2 12-20'

Sample Collected: 11/10/04 13:40 Sample Receipt : 11/12/04

Date of Report : 12/22/04

SVL JOB: 114620

SAMPLE: 428171

Matrix: ESOIL

Extraction: SPLP

Determination	Result	Units	Dilution	Method	Analyzed
ALKALINITY	15.6	mg CaCO3	/L	2320B	12/06/04
CO3, CaCO3	<1.0	mg CaCO3	/L	2320B	12/06/04
HCO3, CaCO3	15.6	mg CaCO3	/L	2320B	12/06/04
Hq	6.24			150.1	12/06/04
TDS	117	mg/L Ext		160.1	12/03/04
Chloride	<0.20	mg/L Ext		300.0	12/07/04
Fluoride	0.31	mg/L Ext		300.0	12/07/04
Sulfate, SO4	55.8	mg/L Ext	5	300.0	12/07/04
	ALKALINITY CO3, CaCO3 HCO3, CaCO3 pH TDS Chloride Fluoride	ALKALINITY 15.6 CO3, CaCO3 <1.0 HCO3, CaCO3 15.6 pH 6.24 TDS 117 Chloride <0.20 Fluoride 0.31	ALKALINITY 15.6 mg CaCO3 CO3, CaCO3 <1.0 mg CaCO3 HCO3, CaCO3 15.6 mg CaCO3 pH 6.24 TDS 117 mg/L Ext Chloride <0.20 mg/L Ext Fluoride 0.31 mg/L Ext	ALKALINITY 15.6 mg CaCO3/L CO3, CaCO3 <1.0 mg CaCO3/L HCO3, CaCO3 15.6 mg CaCO3/L pH 6.24 TDS 117 mg/L Ext Chloride <0.20 mg/L Ext Fluoride 0.31 mg/L Ext	ALKALINITY 15.6 mg CaCO3/L 2320B CO3, CaCO3 <1.0 mg CaCO3/L 2320B HCO3, CaCO3 15.6 mg CaCO3/L 2320B pH 6.24 150.1 TDS 117 mg/L Ext 160.1 Chloride <0.20 mg/L Ext 300.0 Fluoride 0.31 mg/L Ext 300.0

Reviewed By:___

Date 12/22/04

Certificate: ID ID00019

One Government Gulch P.O. Box 929 Kellogg, Idaho 83837-0929

Phone: (208)784-1258 **a** Fax: (208)783-0891

CLIENT : Phelps Dodge - Chino Mine

PROJECT: G04880

CLIENT SAMPLE ID: GH5-3 0-2'

Sample Collected: 11/10/04 14:15

Sample Receipt : 11/12/04 Date of Report : 12/22/04

SVL JOB: 114620 SAMPLE: 428172

Matrix: ESOIL

E3	ζtr	ac	ŢΊ	on	:	SPL	L

Determination	Result	Units Dilution	Method	Analyzed
ALKALINITY	19.3	mg CaCO3/L	2320B	12/06/04
CO3, CaCO3	<1.0	mg CaCO3/L	2320B	12/06/04
HCO3, CaCO3	19.3	mg CaCO3/L	2320B	12/06/04
pН	6.54		150.1	12/06/04
TDS	41	mg/L Ext	160.1	12/03/04
Chloride	0.21	mg/L Ext	300.0	12/07/04
Fluoride	<0.10	mg/L Ext	300.0	12/07/04
Sulfate, SO4	8.38	mg/L Ext	300.0	12/07/04
	ALKALINITY CO3, CaCO3 HCO3, CaCO3 pH TDS Chloride Fluoride	ALKALINITY 19.3 CO3, CaCO3 <1.0 HCO3, CaCO3 19.3 pH 6.54 TDS 41 Chloride 0.21 Fluoride <0.10	ALKALINITY 19.3 mg CaCO3/L CO3, CaCO3 <1.0 mg CaCO3/L HCO3, CaCO3 19.3 mg CaCO3/L pH 6.54 TDS 41 mg/L Ext Chloride 0.21 mg/L Ext Fluoride <0.10 mg/L Ext	ALKALINITY 19.3 mg CaCO3/L 2320B CO3, CaCO3 <1.0 mg CaCO3/L 2320B HCO3, CaCO3 19.3 mg CaCO3/L 2320B pH 6.54 150.1 TDS 41 mg/L Ext 160.1 Chloride 0.21 mg/L Ext 300.0 Fluoride <0.10 mg/L Ext 300.0

Reviewed By:_

Date/2/22/04

One Government Gulch . P.O. Box 929 . Kellogg, Idaho 83837-0929 . Phone: (208)784-1258 . Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine

PROJECT: G04880

CLIENT SAMPLE ID: GH5-3 3A

Sample Collected: 11/13/04 Sample Receipt : 11/12/04 Date of Report : 12/22/04

SVL JOB: 114620

SAMPLE: 428173

Matrix: ESOIL

Extraction: SPLP

	Determination	Result	Units	Dilution	Method	Analyzed
	ALKALINITY	20.2	mg CaCO3	/L	2320B	12/06/04
	CO3, CaCO3	<1.0	mg CaCO3.	/L	2320B	12/06/04
-	HCO3, CaCO3	20.2	mg CaCO3	/L	2320B	12/06/04
	pН	6.39			150.1	12/06/04
	TDS	55	mg/L Ext		160.1	12/03/04
	Chloride	0.24	mg/L Ext		300.0	12/07/04
	Fluoride	<0.10	mg/L Ext		300.0	12/07/04
Ţ	Sulfate, SO4	5.27	mg/L Ext		300.0	12/07/04

Luky Gran Reviewed By:

Date /2/22/09

Quality Control Report Part I Prep Blank and Laboratory Control Sample

Client :Phelps	SVL JOB 1	Jo: 114620 Analysis						
Analyte	Method	Matrix	Units	Prep Blank	True	LCS-Found	LCS %R	Date
Chloride Fluoride Sulfate, SO4 ALKALINITY pH TDS	300.0 300.0 300.0 2320B 150.1 160.1	ESOIL	mg/L Ext mg/L Ext mg/L Ext mg/L Ext mg/L Ext	<0.20 <0.10 <0.30 <1.0 5.05	5.00 2.50 10.0 47.0 5.40	4.86 2.63 9.90 48.5 5.44 399	97.2 105.2 99.0 103.2 100.7 90.5	12/07/04 12/07/04 12/07/04 12/06/04 12/06/04 12/03/04

LEGEND:

LCS = Laboratory Control Sample

LCS %R = LCS Percent Recovery

N/A = Not Applicable

Quality Control Report
Part II Duplicate and Spike Analysis

Clie	Client :Phelps Dodge - Chino Mine —QC SAMPLE ID —Duplicate or MSD —Matrix Spike ——Analysis										
:st	Method Mtx	Units	Result	Found	RPD%	Result	SPK ADD	₹R	Date		
Cl	300.0 E	mg/L Ex	0.22	0.30	30.8	2.16	2.00	97.0	12/07/04		
F	300.0 E 1	mg/L Ex	0.16	0.12	28.6		2.00		12/07/04		
SO4	300.0 E 1	mg/L Ex	9.93	9.98	0.5		5.00		12/07/04		
ALK	2320B E 1	mg/L Ex	21.8	22.2	1.8	N/A	N/A	N/A	12/06/04		
CO3	2320B E 1	mg/L Ex	<1.0	<1.0	UDL	N/A	N/A	N/A	12/06/04		
HCO3	2320B E 1	mg/L Ex	21.8	22.2	1.8	N/A	N/A	N/A	12/06/04		
pН	150.1 E 1		6.40	6.59	2.9	N/A	N/A	N/A	12/06/04		
TDS	160.1 E 1	mg/L Ex	60	62	3.3	N/A	N/A	N/A	12/03/04		

LEGEND:

SPIKE ADD column, A = Post Digest Spike; ZR = Percent Recovery N/A = Not Analyzed; R > 4S = Result more than 4X the Spike Added QC limits for MS recoveries apply only if the spike is at least 1/4 the concentration of the analyte in the sample.

Control limits for the RPD apply only if the concentration of the analyte in the sample is at least five times the reporting limit. QC Sample 1: SVL SAM No.: 428165 Client Sample ID: GH5-1 4'

141020 -HELDO TA

Chain of Custody Record Cooler Temp COC No. Page 1 of 1 PamPinson11-11-04 Project Name **Analytical Parameters** Lucky Bill Canyon-Groundhog Stockpile No. 5 As per Golder's (Jen Pepe's) instructions Chino Mines Company Project Manager Project Location: SFLF job Pam Pinson ELWD. Lucky Bill Canyon Sampler(s): P.O. Box 7 Hurley, N.M. 88043 Type Sample Identification Matrix Same Sample No. of 9 10 11 12 13 14 15 16 17 18 19 20 سلكه Date Grab (Field ID) Chain of Custody Seal# time Containers ********** 9:10 GH5-1 0-2' rock soil/chip X ############ 9:50 GH5-1 X Formple bottle 1)10 rock soli/chip ############# GH5-1: 6-10' Foods- 6145 11:00 1 X rock soll/chip ************ @ Lucky Bill 11:00 GH5-1 12-16' rock spil/chip 1 х GH5-1 18-20' 1500 11:00 rock soll/chip 1 x ******** 15:00 Water unfiltered 500 ml 11-12-04 Water ميرو ٢٥٠ ١٠٠١ 15:00 Water w/HNO Water 500 ml x K Sumple bottle Reads. 6H5 re Lucky bil 11/10/14 1580 1465 11-12-04 **Special Instructions** Date & Time **Shipping Details** 2:30 Method of Shipment: **UPS RED** Relinguished by: 11-12-04 3:20 Airbill No. Received by: Relinquished by: ab Addresses: ATTN; Chris Myer Phone: 208-784-1258 Received for Laboratory by: Fax: 208-783-0891 One Government Gulch Kellogg, ID 83837-0929

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	Project Name																								An	alvt	ical Parameters
- 1	Lucky Bil	l Canyon-	Ground	hog Stockpile No. 5	Project Man	2005	١,,		olde		lon	Don	i		41.									Chi			
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ŀ				Lucky Bill Canyon	<u>Pam</u>	Pinson	1																	ELW		-	
ľ	Sampler(s):		-	Comple Identification			-																	1	Box		38043
ı	Sample Date	time	Type Grab	Sample Identification (Field ID)	Matrix	No. of Containers	1	2	3	4	5	6	7	8		10	11	12	13	14	15	16	17		19		Chain of Custody Seal#
14	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	11:45	×	GH5-2 0-6"	rock soil/chip	1	×	┢▔			Ť			_	٣		•••		<u> </u>	'''	<u> </u> "		'	· · ·	-:-		Chain of Custody Sealir
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SVL ANALYTICAL, INC. One Government Gulch - Kellogg, ID 83837-0929

Page 1 of 1

CLIENT: Pam Pinson

Phelps Dodge - Chino Mine

PO Box 7

SAMPLE RECEIPT CONFIRMATION

SVL JOB No:

Received: 11/12/04

Expected Due date:

11/30/04

Hurley NM 88043 FAX: (505)537-8012

114620

114620

SVL#	M	ClientID	Sampled	Time	Ву	Received
428164	E	GH5-1 0-2'	11/10/04	9:10		11/12/04
428165	_	GH5-1 4'	11/10/04	1		11/12/04
428166 428167		GH5-1 6-10' GH5-1 12-16'	11/10/04			11/12/04
428168	_	GH5-1 12-16	11/10/04	,	1	11/12/04
428169		GH5-2 0-6"	11/10/04			11/12/04
428170	E	GH5-2 4-8"	11/10/04	13:34		11/12/04
428171		GH5-2 12-20'	11/10/04	1	1	11/12/04
428172 428173		GH5-3 0-2'	11/10/04			11/12/04
428173	_	GH5-3 3A EXTRACTION FLUID	/ /	:		11/12/04

ADDITIONAL COMMENTS FOR JOB: Sample Cooler temp: 13°C. SPLP ON THIS JOB

^[] These samples will be DISPOSED 180 days after job completion.

[[]X] These samples will be ARCHIVED 180 days, then you will receive a letter requesting disposal options.

PHELPS DODGE – CHINO MINE ATTN: PAM PINSON

Project: LUCKY BILL CANYON
GROUNDHOG STOCKPILE
No.5

SVL/SDG: 114622

PHELPS DODGE - CHINO

PROJECT: LUCKY BILL CANYON

GROUNDHOG STOCKPILE NO.5

SVL/SDG: 114622

	DOCUMENT	PAGE NUMBER	<u>s</u>
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SDG: 114622	Data Report Forms	2	58
	Raw Data	59	185
	Preparation Logs	186	189
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	*Chain of Custody	193	194
	Sample Log-In	195	195
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	Run Logs	198	201
	Confirmation	202	203
ABA'S	Data Report Forms	204	215
	Raw Data	216	228



NARRATIVE

PHELPS DODGE – CHINO
Project: LUCKY BILL CANYON-GROUNDHOG
STOCKPILE NO.5

SVL/SDG: 114622

Samples received for metals, and ABA'S.

Samples were air-dried; an aliquot of each sample was pulverized to minus 160 mesh and analyzed.

Percent solids not applicable.

Client identification indicated in comment field of Forms 1 and 5A.

The continuing calibration blank for lead failed; the initial analysis results for lead are reported for the continuing calibration verification and blanks.

Molybdenum was not spiked in the initial digestion; therefore the matrix spike sample was digested and analyzed

Samples for antimony and selenium on Forms 1 and 5A are flagged with an "N".

"N"flag represents the spike recovery is out of the control limits of 75-125% and the spike add is greater than or equal to ¼ of the sample result.

Post digest spike analyzed for antimony.



NARRATIVE

PHELPS DODGE – CHINO
Project: LUCKY BILL CANYON-GROUNDHOG

STOCKPILE No. 5

SVL/SDG: 114622

Some samples for arsenic and selenium are flagged with a W (Form 1).

"W" flag represents the post digestion spike for Furnace AA analysis is out of the control limits of 85-115%, while sample absorbance is less than 50% of spike absorbance.

Samples for potassium and sodium copper on Forms 1 and 9 are flagged with an "E".

"E" flag represents the percent difference of the serial dilution is greater than 10% and the original sample concentration (reported on Form 1) is greater than 50X the IDL reported on Form 10.

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: S	SVL_ANALYTICAL_INC	Contract:	
Lab Code: S	SILVER Case No.:	SAS No.:	_ SDG No.: 114622
SOW No.: I	LM04		
	EPA SAMPLE NO.	Lab Sample ID	
Were ICP in	nterelement correction	s applied ?	Yes/No YES
	ackground corrections		Yes/No YES
	s - were raw data gene cation of background c		Yes/No NO_
Comments: PROJECT	F:_LUCKY_BILL_CANYON-G LUCKY_BILL_CANYON	ROUNDHOG_STOCKPILE_NO.5_	
CLIENT	IDENTIFICATION INDICA	TED IN COMMENT FIELD OF	FORMS 1 AND 5A.
I certify to conditions other than in this had on floppy of Manager's of the conditions of the conditi	that this data package of the contract, both the conditions detailed and the condition	is in compliance with t technically and for comed above. Release of the din the computer-readab orized by the following signature.	he terms and pleteness, for e data contained le data submitted Manager or the re.
Signature:	- Cellin Sanace	Name: MELBA B	ENCICH
Date:	JANHARY 12, 2005 Lisky Ling	Title: DOCUMEN	T CONTROL OFFICER
i		COVER PAGE - IN	ILM04.1

U.S. EPA - CLP

	·	,
CLIENT	SAMPLE	NO.

INORGANIC	ANALYSES	DATA	SHEET

Lab Name: SVL ANALYTICAL INC.	Contract:	S428196
Lab Code: SILVER Case No:	SAS No: SDG N	No: 114622
Matrix (soil/water): SOIL_		ID: S428196
Level (low/med): LOW	Date Recei	ived: 11/12/04
% Solids: 100.0		

Concentration Units (ug/L or mg/kg dry weight): MG/KG

	Before: After:	BROWN	Clarity Before:	Texture: Artifacts:	MEDIUM
	IENT ID:	GH5-10-2' PORTION)	***************************************		
PEI	RCENT_SOL	DORITON) TDS_NOT_APPLI	CABLE		_
			FORM I - IN		TLM04.1

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CLIENT	SAMPLE	NO
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		INORGANIC A	ANALYSES DATA	SHEET	ı 	
Tab Nave Orm	3 3 1 3 1 1 1 mm + 0 3 T	TNO	O-mby b		S428197	
Lab Name: SVL	ANALYTICAL	_INC	Contract:	000	11462	<u></u>
rap code: 21r	ver case	NO:	_ SAS No:	SDG	No: 11462	2
Matrix (soil/				Lab Samp	le ID: S428	19/
Level (low/me				Date Rec	eived: 11/1	2/04
% Solids:	100	.0				
_						
C	oncentratio	n Units (ug.	/L or mg/kg dr	y weight)	: MG/KG	
	,		4	,		
		l	i	_		
	CAS No.	Analyte	Concentration	C Q	M	
	7420 00 -			}−		
	7429-90-5	Aluminum_	4490]]	<u>P</u>	
	7440-36-0	Antimony	0.76		P_	
	7440-38-2	Arsenic	3.4		<u>P</u> _	
•		Cadmium	3.4		P_ P_ P_	
	7440-70-2	Calcium	256000	_	P	
		Chromium	20.5	_	P_	
		Cobalt	2.3	B	P_ P	
	7440-50-8	Copper	58.5	_ <u></u>	P_	
	7439-89-6_	Iron	5800		P P P P P P P P P P P P P P P P P P P	
	1/439-92-1	Lead	661		P	
	7439-95-4		18400		P	
		Manganese	1530		P	
	7440-02-0	Nickel	9.6	-	P	
	7440-09-7	Potassium	1370	E	P	
	7782-49-2	Selenium -	1.6	<u>u</u>	F ⁻	
	7440-23-5	Sodium	77.0	В	P_	
	7440-66-6	Zinc	1020		[P_	
		Molybdenum	1.8		P-	
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0-1 7-5	DROINI	01	D. f		Manh	MEDTINA
Color Before:	BROWN	Clarit	y Before:		Texture:	MEDIUM
Color After:	BROWN	Clarit	ý After:		Artifacts:	
G						
Comments:	OTTE 1 4!					
CLIENT ID:						
(PULVERIZE)		77 T () 77 T				
PERCENT_SO	LĪDS_NOT_API	LLICABLE				

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INORGANIC ANALYSES DATA SHEET

CLIENT	SAMPLE	$NI \cap$
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		INORGANIC A	ANALYSES DATA	SHEET	
Lab Name: SVL	_ANALYTICAL				S428198
Lab Code: SIL' Matrix (soil/ Level (low/med % Solids:	water): SOI	L	SAS No:	Lab Samp	No: 114622 le ID: S428198 eived: 11/12/04
C	oncentration	n Units (ug,	/L or mg/kg dry	y weight)	: MG/KG
	CAS No.	Analyte	Concentration	C Q	М
	7440-36-0 7440-38-2 7440-43-9 7440-70-2 7440-47-3 7440-48-4 7440-50-8 7439-89-6 7439-92-1 7439-95-4	Manganese_ Nickel_ Potassium_	11800	B	
Color Before: Color After:	BROWN		y Before:	· 	Texture: MEDIUM Artifacts:
(PULVERIZEI	GH5-1 6-10 D PORTION) LIDS_NOT_APE				

FORM I - IN

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U.S. EPA - CLP

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CLIENT	SAMPLE	NO.

1 INORGANIC ANALYSES DATA SHEET

Tab Names OUT ANALYMICAT INC	Cambus at a	5428199
Lab Name: SVL ANALYTICAL INC.	Contract:	
Lab Code: SILVER Case No:	SAS No:	SDG No: 114622
Matrix (soil/water): SOIL_		ab Sample ID: S428199
Level (low/med): LOW T	Da	ate Received: 11/12/04
% Solids: 100.0		

Concentration Units (ug/L or mg/kg dry weight): MG/KG

l ————————————————————————————————————					
CAS No.	Analyte	Concentration	С	Q	М
7429-90-5 7440-36-0 7440-38-2 7440-43-9 7440-70-2 7440-47-3 7440-48-4 7440-50-8 7439-95-4 7439-95-4 7439-96-5 7440-02-0 7440-09-7 7782-49-2 7440-23-5 7440-66-6	Aluminum Antimony Arsenic Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Nickel Potassium Selenium Sodium	13300 0.76 4.1 0.76 6810 35.1 6.3 89.5 22500 46.5 6640 721 5.2 2140 0.80 98.6 172		Q	
7439-98-7_	Molybdenum	3.4			P

	•				-	 	
	Before: After:	BROWNBROWN	Clarity Clarity	Before: After:		Texture: Artifacts:	MEDIUM
Commer CL]	LENT ID:	GH5-112-16' PORTION)					
PEF	RCENT_SOL	IDS_NOT_APPLICA	BLE			 	
			FORM	NI - IN		 	<u>ILM0</u> 4.1

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		INORGANIC	ANALYSES DATA	SHEET'	1
Tob None Civ	3 N13 T 12m * ~ ~ *	TNO	Contract		S428200
Lab Name: SVI	ANALYTICAL		Contract: _		1
Lab Code: SIL			_ SAS No:		No: 114622
Matrix (soil/ Level (low/me					le ID: S428200 eived: 11/12/04
% Solids:	100	. 0			
	Concentration	n Units (ug	/L or mg/kg dr	y weight):	: MG/KG
	CAS No.	Analyte	Concentration	C Q	М
; ;	7429-90-5	Aluminum	10600	1-1	P
ž.	7440-36-0	Antimony	0.76	$ \overline{U} ^{-N}$	P
		Arsenic -	3.8		P-
Ž.		Cadmium	0.41	 	D-
		Calcium	8280		P_ P_
l,	7440-47-3		41.6		5-1
	7440-48-4		4.2	=	P
₽.			47.8	^D	<u> </u>
	7440-50-8	Copper		{_ —	<u>P_</u>
J	7439-89-6_	Iron	13400		P_ P_ P_ P_
	7439-92-1		37.7	lll	P_
R		Magnesium	4590		P
ľ.	7439-96-5	Manganese	502		D I
	7440-02-0		3.8	B	P_ P_
•		Potassium	1780	[_ E _ [p -
			0.80		F-
i	7782-49-2	Seremum	254	 - 	<u>-</u> -
ł	7440-23-5	(<u></u>		BE	P_
l	7440-66-6	Zinc	104	_	P
	7439-98-7	Molybdenum	3.5		P
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	l	·	l ————————————————————————————————————		<u> </u>
Color Before: Color After:	BROWN	Clarit Clarit	ty Before:		Texture: MEDIUM Artifacts:
Comments:					
CLIENT ID:	GH5-1 18-2	20'		<u>.</u>	
(PULVERIZE	D PORTION)				
PERCENT SO	LIDS NOT API	PLICABLE			
					

FORM I - IN

1 INORGANIC ANALYSES DATA SHEET

CLIENT S	AMPLE	NO
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Lab Name: SVL A Lab Code: SILV Matrix (soil/wa	ater): SOII	L	Contract: SAS No:		S42 DG No: 1		
Level (low/med) % Solids:): LOW_ 100.	_		Date Re	eceived:	11/12/0	14
Cor	CAS No. 7429-90-5 7440-36-0 7440-38-2 7440-43-9 7440-47-3 7440-48-4 7440-50-8 7439-95-4 7439-96-5 7440-02-0 7440-03-7 7782-49-2 7440-23-5	Analyte Aluminum Antimony Arsenic Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Nickel Potassium Selenium Sodium	Concentration	C Q	M P P P P P P P P P P P P P P P P P P P		
Color Before:	BROWN	Molybdenum	5.6		P_ 		DIUM
Color After: Comments: CLIENT ID: C (PULVERIZED PERCENT SOL	PORTION)	·	xy After:		Artifa	cts:	

1 INORGANIC ANALYSES DATA SHEET

CITENIT	SAMPLE	MO
CHITCHI		INC

11/01/01/11/10	IDIODO DAITA ONDEI	1
Inh Name: CVT ANALYTICAL INC	Contract	S428202
Lab Name: SVL ANALYTICAL INCLab Code: SILVER Case No:	Contract: SAS No: SDG	No: 114622
Matrix (soil/water): SOIL		le ID: S428202
Level (low/med): LOW		eived: 11/12/04
% Solids: 100.0	Dute Rec	

Concentration Units (ug/L or mg/kg dry weight): MG/KG

1	· · · · · · · · · · · · · · · · · · ·	 	_		
CAS No.	Analyte	Concentration	С	Q	М
7429-90-5 7440-36-0 7440-38-2 7440-43-9 7440-47-3 7440-48-4 7440-50-8 7439-92-1 7439-95-4 7439-96-5 7440-02-0 7440-09-7 7782-49-2 7440-23-5	Aluminum Antimony Arsenic Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Nickel Potassium Selenium	10300	- U - I - B - I - I - I - D		
7440-23-5 7440-66-6 7439-98-7	SodiumZincMolybdenum	87.6 299 2.9	B	E	

	Before: After:	BROWN	Clarity Clarity			Texture: Artifacts:	MEDIUM ———
(PI	IENT ID: (JLVERIZED			· · · · · · · · · · · · · · · · · · ·			
PEI —	RCENT_SOL	IDS_NOT_APPLICA	BLE	 И Т – Т N			

NODGANIG ANALYGIG DAMA G

CLIENT	SAMPLE	NO
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		INORGANIC A	ANALYSES DATA	SHEET	ı ——	
Lab Name: SVL Lab Code: SIL	ANALYTICAL JER Case	_INC	Contract: _ SAS No:	- CT	S428203	i
Matrix (soil/v Level (low/med % Solids:	vater): SOI	L		Lab Sam	aple ID: S428 eceived: 11/1	3203
Co	oncentration	n Units (ug	/L or mg/kg dr	y weight): MG/KG	
	CAS No.	Analyte	Concentration	C Q	м	
Color Before:	7440-47-3 7440-48-4	Antimony Arsenic Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Nickel Potassium Selenium Zinc Molybdenum	9540 0.76 4.4 0.87 36400 38.6 3.8 14.6 14400 186 5010 3220 0.34 3200 1.6 87.4 226 4.1	U	P	MEDIUM
Color After:	BROWN	Clarit	y After:		Artifacts:	
Comments: CLIENT ID: (PULVERIZED PERCENT_SOL	PORTION)					

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INORGANIC	ANALYSES	DATA	SHEET

		1 /
CLIENT	SAMPLE	NO.

		INURGANIC A	ANALYSES DATA	SHEET	,
Lab Name: SVL	ANALYTICAL	INC.	Contract:		S428204
Lab Code: SILT	ZER Case	-No:	SAS No:	SDG	No: 114622
Matrix (soil/v			_ DAD NO:	735 Camp	10. 114022
Level (low/med		_		Dan Samp	le ID: S428204
				Date Rec	eived: 11/12/04
% Solids:	100	. 0			
Co	oncentration	n Units (ug,	/L or mg/kg dr	y weight)	: MG/KG
	CAS No.	Analyte	Concentration	C Q	М
1	7429-90-5	Aluminum	5220	{}	P
			0.76		P-
•		Antimony	l	U N	<u> 4 1 1 1 1 1 1 1 1 1 </u>
		Arsenic	2.4	l <u></u> l	P_ P_
1	7440-43-9	Cadmium	0.57		P_
·	7440-70-2	Calcium	259000		P .
	7440-47-3	Chromium	17.7	-	P
	7440-48-4	Cobalt	2.4	B	P
1	7440-50-8	Copper	26.5	-	P P P P P P P P P P P P P P P P P P P
	7439-89-6	Iron	5760	ļ-	- -
	7439-92-1			-	_
ļ			33.6	-	<u>-</u> -
. 1	7439-95-4		9520	_	[P_]
	7439-96-5	_	268	l_l_	P_
'	7440-02-0	Nickel	9.8	·	P
'	7440-09-7	Potassium	1730	E	P
	7782-49-2		1.6	<u>u</u>	ਜ਼ਿ
l [7440-23-5	Sodium	77.7	B	
	7440-66-6	Zinc	90.7		P P P P P P P P P P P P P P P P P P P
'		Molybdenum		-	- -
1	7439-98-7	Molyboenmu	1.1	-	^P _
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Color Before:	BROWN		y Before:		Texture: MEDIUM
Color After:	BROWN	Clarit	y After:		Artifacts:
 			•		
Comments:					
CLIENT ID:	CR2 3 0 21				
CDIENI ID:	2 DODUL 211				
(PULVERIZED					
PERCENT_SOL	TDS_NOT_API	LTICARTE	<u> </u>		

FORM I - IN

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U.S. EPA - CLP

1 INORGANIC ANALYSES DATA SHEET

	1	4
CLIENT	SAMPLE	NO.

		INORGANIC A	ANALYSES DATA	SHEET	1
Tab Name - Cit	3313 T 37M T (23 T	INC	Contract		S428205
Lab Name: SVL Lab Code: SIL	_ANALYTICAL_ VER Case		SAS No:	<u> </u>	 No: 114622
Matrix (soil/			_ 363 NO		le ID: S428205
Level (low/med					eived: 11/12/04
% Solids:	100			Duce nee	C11Ca: 11/12/01
		-			
Co	oncentration	n Units (ug,	/L or mg/kg dr	y weight)	: MG/KG
	CAS No.	Analyte	Concentration	C Q	М
l	7429-90-5	Aluminum	5050	-	P
		Antimony	0.76	U N	[P_]
		Arsenic	3.8		P_ P_
		Cadmium	0.54	B	[P]
	7440-70-2	Calcium_	260000		
		Chromium_	13.6		P_
		Cobalt	2.1		P_ P_
		Copper	23.7		. <u>P</u> _
	7439-89-6_ 7439-92-1	Iron	5520		P_ P_
			29.8	-	[[]
	7439-95-4	Managnesium_	288		P_ P_ P_
	7439-96-5 7440-02-0	Manganese_	9.1	-	P
	7440-02-0	Potaccium	1550	- - E	P_
	7782-49-2	Selenium	1.6	 	F-
	7440-23-5		74.4	$ _{\rm B}^{\circ} $ $ _{\rm E}^{\sim}$	- -
	7440-66-6	Zinc	87.6		P_ P
		Molybdenum	0.71	 	P_
	_	2			
					
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Color Before:	BROWN	Clarit	y Before:		Texture: MEDIUM
Color After:	BROWN	Clarit	y After:		Artifacts:
Commontes					
Comments:	CITE 2 23				
CLIENT_ID: (PULVERIZET					
	LIDS NOT APE	DI.TCARI.F			
1 TWORKI _ DOI	1100_HO1_AF1				

FORM I - IN

ILM04.1

OID 1000019 One Government Gulch P.O. Box 929 Kellogg, Idaho 83837-0929 Phone: (208)784-1258 Fax: (208)783-0891

CLIENT: Phelps Dodge - Chino Mine PROJECT: G04880 CLIENT SAMPLE ID: GH5-1 0-2' Sample Collected: 11/10/04 9:10 Sample Receipt: 11/12/04 Date of Report: 1/12/05 SVL JOB: 114622 SAMPLE: 428196

Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
ABP	733	TCaCO3/1	000T	EPA600	12/20/04
Acid Generating	3.13	TCaCO3/1	000T	EPA600	12/20/04
Acid Neut. Pot.	736	TCaCO3/1	000T	EPA600	12/20/04
pH Paste	7.96			ASA M9	12/20/04
Non-Ext Sulfur,S	0.090	8		LECO	12/20/04
Pyritic Sulfur, S	0.100	8	_	LECO	12/20/04
Sulfate Sulfur,S	0.330	8	•	LECO	12/20/04
Total Sulfur, S	0.520	8		LECO	12/20/04

Date

Certificated ID ID00019

One Government Gulch P.O. Box 929 Kellogg, Idaho 83837-0929 Phone: (208)784-1258 • Fax: (208)783-0891

CLIENT: Phelps Dodge - Chino Mine PROJECT: G04880

CLIENT SAMPLE ID: GH5-1 4'
Sample Collected: 11/10/04 9:50
Sample Receipt : 11/12/04
Date of Report : 1/12/05

SVL JOB: 114622 SAMPLE: 428197

Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
ABP	764	TCaCO3/100	00T	EPA600	12/20/04
Acid Generating	5.31	TCaCO3/100	TOT	EPA600	12/20/04
Acid Neut. Pot.	769	TCaCO3/100	T00	EPA600	12/20/04
pH Paste	8.16			ASA M9	12/20/04
Non-Ext Sulfur,S	0.010	8		LECO	12/20/04
Pyritic Sulfur,S	0.170	8		LECO	12/20/04
Sulfate Sulfur, S	<0.010	용		LECO	12/20/04
Total Sulfur, S	0.170	8		LECO	12/20/04

Date //12/05 8:32

Certificate: ID ID00019

Phone: (208)784-1258 • Fax: (208)783-0891 One Government Gulch P.O. Box 929 Kellogg, Idaho 83837-0929

CLIENT: Phelps Dodge - Chino Mine

PROJECT: G04880

CLIENT SAMPLE ID: GH5-1 6-10' Sample Collected: 11/10/04 11:00 Sample Receipt: 11/12/04 Date of Report: 1/12/05

SVL JOB: 114622

SAMPLE: 428198

Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
ABP	63.5	TCaC03/1	000T	EPA600	12/20/04
Acid Generating	<0.30	TCaCO3/1	000T	EPA600	12/20/04
Acid Neut. Pot.	63.5	TCaCO3/1	T000	EPA600	12/20/04
pH Paste	8.09	·		ASA M9	12/20/04
Non-Ext Sulfur, S	<0.010	육		LECO	12/20/04
Pyritic Sulfur, S	<0.010	8		LECO	12/20/04
Sulfate Sulfur,S	<0.010	육		LECO	12/20/04
Total Sulfur, S	<0.010	ક		LECO	12/20/04

Reviewed By:_

Date ///2/05 8:32

Certificate: ID ID00019

One Government Gulch P.O. Box 929 Kellogg, Idaho 83837-0929 Phone: (208)784-1258 s Fax: (208)783-0891

CLIENT : Phelps Dodge - Chino Mine

PROJECT: G04880

CLIENT SAMPLE ID: GH5-1 12-16'
Sample Collected: 11/10/04 11:00
Sample Receipt: 11/12/04
Date of Report: 1/12/05

SVL JOB: 114622

SAMPLE: 428199

Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
ABP	16.5	TCaCO3/1	000T	EPA600	12/20/04
Acid Generating	<0.30	TCaCO3/1	000T	EPA600	12/20/04
Acid Neut. Pot.	16.5	TCaCO3/1	T000	EPA600	12/20/04
pH Paste	7.72			ASA M9	12/20/04
Non-Ext Sulfur,S	<0.010	윰		LECO	12/20/04
Pyritic Sulfur,S	<0.010	₽		LECO	12/20/04
Sulfate Sulfur, S	<0.010	8		LECO	12/20/04
Total Sulfur, S	< 0.010	86		LECO	12/20/04

Buly Liay Reviewed By:

Date //2/05 8:32

Certificate: ID ID00019

Phone: (208)784-1258 • Fax: (208)783-0891 One Government Gulch P.O. Box 929 M Kellogg, Idaho 83837-0929

CLIENT: Phelps Dodge - Chino Mine PROJECT: G04880 CLIENT SAMPLE ID: GH5-1 18-20' Sample Collected: 11/10/04 11:00 Sample Receipt: 11/12/04 Date of Report: 1/12/05

SVL JOB: 114622 SAMPLE: 428200

Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
ABP	13.7	TCaCO3/1	000T	EPA600	12/20/04
Acid Generating	<0.30	TCaCO3/1	000T	EPA600	12/20/04
Acid Neut. Pot.	13.7	TCaCO3/1	000T	EPA600	12/20/04
pH Paste	8.39			ASA M9	12/20/04
Non-Ext Sulfur, S	<0.010	ક		LECO	12/20/04
Pyritic Sulfur,S	<0.010	8		LECO	12/20/04
Sulfate Sulfur,S	<0.010	%		LECO	12/20/04
Total Sulfur, S	<0.010	8		LECO	12/20/04

Buly Gray Reviewed By:

Date //12/05 8:32

One Government Gulch . P.O. Box 929 . Kellogg, Idaho 83837-0929 . Phone: (208)784-1258 • Fax: (208)783-0891

CLIENT: Phelps Dodge - Chino Mine PROJECT: G04880 CLIENT SAMPLE ID: GH5-2 0-6" Sample Collected: 11/10/04 13:34 Sample Receipt: 11/12/04 Date of Report: 1/12/05

Certificate: TD ID00019

SVL JOB: 114622 SAMPLE: 428201

Matrix: SOIL

	Determination	Result	Units	Dilution	Method	Analyzed
	ABP	319	TCaCO3/1	000T	EPA600	12/20/04
ı	Acid Generating	24.1	TCaCO3/1	000T	EPA600	12/20/04
ı	Acid Neut. Pot.	343	TCaCO3/1	T000	EPA600	12/20/04
	pH Paste	7.25			ASA M9	12/20/04
	Non-Ext Sulfur, S	0.090	육		LECO	12/20/04
	Pyritic Sulfur,S	0.770	8		LECO	12/20/04
1	Sulfate Sulfur,S	0.340	₽5		LECO	12/20/04
	Total Sulfur, S	1.20	8		LECO	12/20/04

Reviewed By:

Date //2/05 1/12/05 8:32

Certificate: 90 1000019

One Government Gulch
P.O. Box 929
Kellogg, Idaho 83837-0929 Phone: (208)784-1258 • Fax: (208)783-0891

CLIENT : Phelps Dodge - Chino Mine

PROJECT: G04880

CLIENT SAMPLE ID: GH5-2 4-8"

Sample Collected: 11/10/04 13:40
Sample Receipt: 11/12/04
Date of Report: 1/12/05

SVL JOB: 114622

SAMPLE: 428202

Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
ABP	451	TCaCO3/1	000T	EPA600	12/20/04
Acid Generating	0.94	TCaCO3/1	T000	EPA600	12/20/04
Acid Neut. Pot.	452	TCaCO3/1	000T	EPA600	12/20/04
pH Paste	7.61			ASA M9	12/20/04
Non-Ext Sulfur,S	0.010	용		LECO	12/20/04
Pyritic Sulfur, S	0.030	윰		LECO	12/20/04
Sulfate Sulfur, S	0.200	윰		LECO	12/20/04
Total Sulfur, S	0.240	8		LECO	12/20/04

Reviewed By:

Date 1/12/05 1/12/05 8:32

Certificate: ID ID00019

One Government Gulch P.O. Box 929 Kellogg, Idaho 83837-0929 Phone: (208)784-1258 **a** Fax: (208)783-0891

CLIENT: Phelps Dodge ~ Chino Mine PROJECT: G04880

CLIENT SAMPLE ID: GH5-2 12-20'
Sample Collected: 11/10/04 13:40
Sample Receipt : 11/12/04
Date of Report : 1/12/05

SVL JOB: 114622 SAMPLE: 428203

Matrix: SOIL

Result	Units	Dilution	Method	Analyzed
91.7	TCaCO3/1	000T	EPA600	12/20/04
7.81	TCaCO3/1	1000T	EPA600	12/20/04
99.5	TCaCO3/1	1000T	EPA600	12/20/04
7.69			ASA M9	12/20/04
s 0.010	윰		LECO	12/20/04
s 0.250	윰		LECO	12/20/04
s 0.090	₽6_		LECO	12/20/04
0.350	8		LECO	12/20/04
	91.7 7.81 99.5 7.69 S 0.010 S 0.250 S 0.090	91.7 TCaCO3/1 7.81 TCaCO3/1 99.5 TCaCO3/1 7.69 S 0.010 % S 0.250 % S 0.090 %	91.7 TCaCO3/1000T 7.81 TCaCO3/1000T 99.5 TCaCO3/1000T 7.69 S 0.010 % S 0.250 % S 0.090 %	91.7 TCaCO3/1000T EPA600 7.81 TCaCO3/1000T EPA600 99.5 TCaCO3/1000T EPA600 7.69 ASA M9 S 0.010 % LECO S 0.250 % LECO S 0.090 % LECO

Reviewed By:

Guly Gray

__Date<u>///2/05</u> /1/12/05 8:32

Certificate: ID ID00019

One Government Gulch P.O. Box 929 Kellogg, Idaho 83837-0929 Phone: (208)784-1258 • Fax: (208)783-0891

CLIENT: Phelps Dodge - Chino Mine PROJECT: G04880

CLIENT SAMPLE ID: GH5-3 0-2'
Sample Collected: 11/10/04 14:15
Sample Receipt : 11/12/04
Date of Report : 1/12/05

SVL JOB: 114622

SAMPLE: 428204

Matrix: SOIL

	Determination	Result	Units	Dilution	Method	Analyzed
	ABP	715	TCaCO3/1	T000	EPA600	12/20/04
İ	Acid Generating	0.31	TCaCO3/1	T000	EPA600	12/20/04
-	Acid Neut. Pot.	715	TCaCO3/1	T000	EPA600	12/20/04
	pH Paste	7.89			ASA M9	12/20/04
1	Non-Ext Sulfur,S	0.010	윰		LECO	12/20/04
1	Pyritic Sulfur,S	0.010	윰		LECO	12/20/04
	Sulfate Sulfur, S	0.080	8		LECO	12/20/04
	Total Sulfur, S	0.100	육		LECO	12/20/04

Reviewed By:

Date //2/05 1/12/05 8:32

Certificate: ID ID00019

One Government Gulch P.O. Box 929 Kellogg, Idaho 83837-0929 Phone: (208)784-1258 • Fax: (208)783-0891

CLIENT: Phelps Dodge - Chino Mine PROJECT: G04880

CLIENT SAMPLE ID: GH5-3 3A Sample Collected: 11/10/04 Sample Receipt: 11/12/04 Date of Report: 1/12/05 SVL JOB: 114622 SAMPLE: 428205

Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
ABP	768	TCaCO3/1	000T	EPA600	12/20/04
Acid Generating	0.31	TCaCO3/1	000T	EPA600	12/20/04
Acid Neut. Pot.	768	TCaCO3/1	T000	EPA600	12/20/04
pH Paste	7.95			ASA M9	12/20/04
Non-Ext Sulfur,S	<0.010	8		LECO	12/20/04
Pyritic Sulfur,S	0.010	육		LECO	12/20/04
Sulfate Sulfur, S	0.080	8		LECO	12/20/04
Total Sulfur, S	0.090	8		LECO	12/20/04

Reviewed By:

Date 1/12/05 8:32

Quality Control Report Part I Prep Blank and Laboratory Control Sample

Client :Phelps Do	odge - (Chino M	ine				SVL JOB 1	No: 114622
Analyte	Method	Matrix	Units	Prep Blank	True	-LCS-Found	LCS %R	Analysis Date
Acid Generating	EPA600	SOIL	TCaCO3/k	N/A	9.36	9.59	102.5	12/20/04
Acid Neut. Pot.	EPA600	SOIL	TCaCO3/k	N/A	52.0	49.6	95.4	12/20/04
pH Paste	ASA M9	SOIL	1	6.48	8.45	8.43	99.8	12/20/04
Non-Ext Sulfur,S	LECO	SOIL	8	<0.010	N/A		N/A	12/20/04
Pyritic Sulfur,S	LECO	SOIL	8	<0.010	N/A		N/A	12/20/04
Sulfate Sulfur, S	LECO	SOIL	8	<0.010	N/A		N/A	12/20/04
Total Sulfur, S	LECO	SOIL	ક	<0.010	0.298	0.300	100.7	12/20/04

LEGEND:

LCS = Laboratory Control Sample

LCS %R = LCS Percent Recovery

N/A = Not Applicable

Client	::Phel	ps		odge - Ch -QC SAMPI	nino Mine LE ID	Duplicate	or	MSD-1	Mat	SVI rix Spike	JOB N	o: 114622 1Analysis
Test N	Method	Mtx		Units	Result	Found		RPD%	Result	SPK ADD	%R	Date
ABP E	EPA600	s	i	TCaCO3/	733	731	ŀ	0.3	N/A	N/A	N/A	12/20/04
AGP E	PA600	S	1	TCaCO3/	3.13	3.13		0.0	N/A	N/A	N/A	12/20/04
ANP E	PA600	S	1	TCaCO3/	736	735	l	0.1	N/A	N/A	N/A	12/20/04
S N-EX	LECO	S	1	2 6	0.090	0.090	- [0.0	N/A	N/A	N/A	12/20/04
S-PYR	LECO	S	1	8	0.100	0.100		0.0	N/A	N/A	N/A	12/20/04
S-S04	LECO	S	1	8	0.330	0.330		0.0	N/A	N/A	N/A	12/20/04
S-TOT	LECO	S	1	8	0.520	0.520	l	0.0	N/A	N/A	N/A	12/20/04

EGEND:

 $RPDZ = (|SAM - DUP|/((SAM + DUP)/2) * 100) \quad UDL = Both SAM \& DUP not detected. *Result or *Found: Interference required dilution. \\ RPDZ = (|SPK - MSD|/((SPK + MSD)/2) * 100) \quad M in Duplicate/MSD column indicates MSD.$

SPIKE ADD column, A = Post Digest Spike; %R = Percent Recovery N/A = Not Analyzed; R > 4S = Result more than 4X the Spike Added QC limits for MS recoveries apply only if the spike is at least 1/4 the concentration of the analyte in the sample.

Control limits for the RPD apply only if the concentration of the analyte in the sample is at least five times the reporting limit. QC Sample 1: SVL SAM No.: 428196 Client Sample ID: GH5-1 0-2'

114622 +45897

Chain of Custody Record Cooler Temp 14.8° COC No. Page 1 of 1 PamPinson11-11-04 Project Name **Analytical Parameters** Lucky Bill Canyon-Groundhog Stockpile No. 6 As per Golder's (Jen Pepe's) instructions Chino Mines Company Project Manager Project Location: Pam Pinson ELWD. Lucky Bill Canyon P.O. Box 7 Sampler(s): Hurley, N.M. 88043 Sample Identification Matrix No. of Sample Type Sameer 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 Grab (Field ID) Containers Chain of Custody Seal# Date time ******* GH5-1 0-2' x 9:10 х rock soil/chlp * Scrople bottle ********** 9:50 GH5-1 4' x rock soll/chip Roads- CoH#5 ****** x 11:00 GH5-1 6-10' rock soil/chlp 1 @ Lucky Bill 11:00 GH5-1 12-16' х rock soil/chip 1 11/10/04 1500 ****** 11:00 GH5-1 18-20' rock soil/chip х 15:00 11-12-04 Water unfiltered Water 500 ml X ************* Water w/HNO 15:00 500 ml x 4 Sample botthe Reads. 6H3 ارق ليدولور لي 11/10/14 1580 1:15 11-12-04 Special Instructions Signatures Date & Time **Shipping Details** Relinguished by: 2:37) Method of Shipment: **UPS RED** 11-12-04 3:20 Airbill No. Received by: Relinquished by: Lab Addresses: ATTN: Chris Myer Received for Laboratory by: SVL Phone: 208-784-1258 One Government Gulch Fax: 208-783-0891 Kellogg, ID 83837-0929

114622 = +14620

>	COC No.		Pami	Pinson11-11-04	_	Ch	ıai	n o	f C	ust	tod	y F	Rec	oro	Ł	(<u>၀</u>	01.0	2 4	l	ev	ν ψΞ	•	12	<u>_</u> , &	5 .°	Page 1 of 1
즤	Project Name																							Γ_	An	alvt	ical Parameters
	Lucky Bil	il Canyon	Ground	hog Stockpile No. 5	Project Man	ager	As	per (3old	er's ((Jen	Pepe	's) i	nstrı	ıctio	ons								Chino Mines Company			
Ì	Project Location	n;		Lucky Bill Canyon	1	Pinson																		ELWD.			
ı	Sampler(s):				1																			P.O.		7	
1	Sample		Type	Sample identification	Matrix	No. of	\vdash													-				Hurl	ey, N	.M. E	8043
٦l	Date	time	Grab	(Field ID)		Containers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Chain of Custody Seal#
אנ	######################################	11:45	х	GH5-2 0-6"	rock soil/chip	1	×		ļ	_	Ш				_								L	ļ		_	
베	######################################	13:34	x	GH5-2 4-8"	rock soll/chip	1	×															_	<u> </u>				
الد	######################################	13:40 14:15	X	GH5-2 12-20' GH5-3 0-2'	rock soll/chip	1	X	-					-	-											_		
씻	######################################	none	x	GH5-3 U-2 GH5-3 3A	rock soil/chip	1	X	╁	├	-	-				-		-	_			<u> </u>	_					
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\ A A

CLIENT: Pam Pinson

PO Box 7

SVL ANALYTICAL, INC.

One Government Gulch - Kellogg, ID 83837-0929

SAMPLE RECEIPT CONFIRMATION

SVL JOB No: 114622

Page 1 of 1

Received: 11/12/04

Expected Due date: 11/30/04

Hurley NM 88043

Phelps Dodge - Chino Mine

FAX: (505) 537-8012 114622

SVL#	M	ClientID	Sampled	Time	Ву	Received	Sample Comments
428196	s	GH5-1 0-2'	11/10/04	9:10		11/12/04	
428197	S	GH5-1 4'	11/10/04	9:50	}	11/12/04	
428198	S	GH5-1 6-10'	11/10/04	11:00	1	11/12/04	
428199	S	GH5-1 12-16'	11/10/04	11:00		11/12/04	
428200	S	GH5-1 18-20'	11/10/04	11:00		11/12/04	
428201	S	GH5-2 0-6"	11/10/04	13:34	}	11/12/04	
428202	S	GH5-2 4-8"	11/10/04	13:40]	11/12/04	
428203	S	GH5-2 12-20'	11/10/04	13:40		11/12/04	
428204	S	GH5-3 0-2'	11/10/04	14:15		11/12/04	
428205	S	GH5-3 3A	11/10/04	:		11/12/04	

ADDITIONAL COMMENTS FOR JOB: Sample Cooler temp: 14°C.
TOT METALS, ABAS, PASTE pH

^[] These samples will be DISPOSED 180 days after job completion.

[[]X] These samples will be ARCHIVED 180 days, then you will receive a letter requesting disposal options.

APPENDIX B-2

ENERGY LABS DATASHEETS



ANALYTICAL SUMMARY REPORT

February 04, 2005

Pam Pinson

Chino Mines

PO Box 7

Hurley, NM 88043

Workorder No.: B05010538

Project Name: Lucky Bill Groundhog No. 5

Energy Laboratories Inc received the following 8 samples from Chino Mines on 1/12/2005 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B05010538-001	GH5-1, 6-10 in	01/11/05 0:00	01/12/05	Soil	Coarse Fragments Conductivity, Saturated Paste Nitrate as N, KCL Extract Organic Matter/Organic Carbon-WB pH, Saturated Paste Phosphorus-Olsen Particle Size Analysis Texture
B05010538-002	GH5-2, 4-8 in	01/11/05 0:00	01/12/05	Soil	Same As Above
B05010538-003	GH5-3, 0-2 in	01/11/05 0:00	01/12/05	Soil	Same As Above
B05010538-004	GH5-2, 12-20 in	01/11/05 0:00	01/12/05	Soil	Same As Above
B05010538-005	GH5-2, 0-6 in	01/11/05 0:00	01/12/05	Soil	Same As Above
B05010538-006	GH5-1, 18-20 in	01/11/05 0:00	01/12/05	Soil	Same As Above
B05010538-007	GH5-1, 12-16 in	01/11/05 0:00	01/12/05	Soil	Same As Above
B05010538-008	GH5-1, 4 ft Grab	01/11/05 0:00	01/12/05	Soil	Same As Above

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except if noted in report comments or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By-



Client: Chino Mines

Report Date: 02/04/05

Project: Lucky Bill Groundhog No. 5

Collection Date: 01/11/05
Date Received: 01/12/05

Lab ID: B05010538-001

ate Received: 01/12/0.

Client Sample ID: GH5-1, 6-10 in

				MCL/	<i>I</i>					
Analyses	Result	Units	Qual RL	QCL	Method	Analysis Date / By				
PHYSICAL CHARACTERISTICS										
Coarse Fragments	67	wt%	2		ASA15-5	01/25/05 16:27 / srm				
Sand	64	%	1		ASA15-5	02/01/05 19:51 / srm				
Silt	16	%	1		ASA15-5	02/01/05 19:51 / srm				
Clay	20	%	1		ASA15-5	02/01/05 19:51 / srm				
Texture	SCL				ASA15-5	02/01/05 19:51 / srm				
- C = Clay, S = Sand(y), Si = Sitt(y), L = Loam(y)										
SATURATED PASTE										
pH, sat. paste	7.80	s.u.	0.10	כ	ASAM10-3.2	01/25/05 16:27 / sm				
Conductivity, sat. paste	0.83	mmhos/cm	0.01	1	ASA10-3	01/25/05 16:27 / srm				
CHEMICAL CHARACTERISTICS										
Phosphorus, Olsen	ND	mg/kg	1		ASA24-5	01/26/05 09:51 / srm				
Nitrate as N, KCL Extract	ND	mg/kg	1		ASA38-3	01/26/05 15:14 / srm				
Organic Matter	0.19	%	0.02	0	ASA29-3	01/31/05 16:03 / sm				



Chino Mines Client:

Project: Lucky Bill Groundhog No. 5

Lab ID: B05010538-002

Client Sample ID: GH5-2, 4-8 in

Report Date: 02/04/05

Collection Date: 01/11/05

Date Received: 01/12/05

Matrix: Soil

				MCL/		
Analyses	Result	Units	Qual	RL QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS						
Coarse Fragments	63	wt%		2	ASA15-5	01/25/05 16:27 / sm
Sand	68	%		1	ASA15-5	02/01/05 19:51 / sm
Silt	15 .	%		1	ASA15-5	02/01/05 19:51 / srm
Clay	17	%		1	ASA15-5	·02/01/05 19:51 / sm
Texture - C = Clay, S = Sand(y), Si = Silt(y), L = Loam(SL (y)				ASA15-5	02/01/05 19:51 / srm
SATURATED PASTE						
pH, sat. paste	7.60	s.u.		0.10	ASAM10-3.2	01/25/05 16:27 / srm
Conductivity, sat. paste	2.72	mmhos/cm		0.01	ASA10-3	01/25/05 16:27 / srm
CHEMICAL CHARACTERISTICS						
Phosphorus, Olsen	ND	mg/kg		1	ASA24-5	01/26/05 09:55 / srm
Nitrate as N, KCL Extract	ND	mg/kg		1	ASA38-3	01/26/05 15:15 / srm
Organic Matter	0.57	%		0.020	ASA29-3	01/31/05 16:03 / srm

Report Definitions: QCL - Quality control limit.

RL - Analyte reporting limit.

MCL - Maximum contaminant level. ND - Not detected at the reporting limit.



Client: Chino Mines

Report Date: 02/04/05

Project: Lucky Bill Groundhog No. 5

Collection Date: 01/11/05
Date Received: 01/12/05

Lab ID: B05010538-003

Matrix: Soil

Client Sample ID: GH5-3, 0-2 in

Analyses	Result	Units	Qual	RL QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS						
Coarse Fragments	67	wt%		2	ASA15-5	01/25/05 16:27 / srm
Sand	72	%		1	ASA15-5	02/01/05 19:51 / srm
Silt	11	%		1	ASA15-5	02/01/05 19:51 / srm
Clay	17	%		1	ASA15-5	02/01/05 19:51 / sm
Texture	SL				ASA15-5	02/01/05 19:51 / sm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)						
SATURATED PASTE						
pH, sat. paste	7.70	s.u.		0.10	ASAM10-3.2	01/25/05 16:27 / sm
Conductivity, sat. paste	1.06	mmhos/cm		0.01	ASA10-3	01/25/05 16:27 / srm
CHEMICAL CHARACTERISTICS						
Phosphorus, Olsen	1	mg/kg		1	ASA24-5	01/26/05 09:57 / srm
Nitrate as N, KCL Extract	ND	mg/kg		1	ASA38-3	01/26/05 15:16 / srm
Organic Matter	0.71	%		0.020	ASA29-3	01/31/05 16:03 / srm



Client: Chino Mines

Report Date: 02/04/05

Project: Lucky Bill Groundhog No. 5

Collection Date: 01/11/05

Lab ID: B05010538-004

Date Received: 01/12/05

Client Sample ID: GH5-2, 12-20 in

Matrix: Soil

			MCL	/	
Analyses	Result	Units	Qual RL QCI	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS					
Coarse Fragments	65	wt%	2	ASA15-5	01/25/05 16:27 / sm
Sand	68	%	1	ASA15-5	02/01/05 19:51 / sm
Silt	12	%	1	ASA15-5	02/01/05 19:51 / srm
Clay	20	%	1	ASA15-5	02/01/05 19:51 / sm
Texture	SCL			ASA15-5	02/01/05 19:51 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)					
SATURATED PASTE					
pH, sat. paste	7.60	s.u.	0.10	ASAM10-3.2	01/25/05 16:27 / sm
Conductivity, sat. paste	2.58	mmhos/cm	0.01	ASA10-3	01/25/05 16:27 / srm
CHEMICAL CHARACTERISTICS					
Phosphorus, Olsen	ND	mg/kg	1	ASA24-5	01/26/05 09:58 / sm
Nitrate as N, KCL Extract	ND	mg/kg	1 ·	ASA38-3	01/26/05 15:16 / sm
Organic Matter	0.86	%	0.020	ASA29-3	01/31/05 16:03 / srm

Report Definitions:

RL - Analyte reporting limit. QCL - Quality control limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



Client: Chino Mines Report Date: 02/04/05

Project: Lucky Bill Groundhog No. 5

Collection Date: 01/11/05 Date Received: 01/12/05

Lab ID: B05010538-005

Client Sample ID: GH5-2, 0-6 in

		MCL/								
Analyses	Result	Units	Qual	RL QCL	Method	Analysis Date / By				
PHYSICAL CHARACTERISTICS										
Coarse Fragments	57	wt%		2	ASA15-5	01/25/05 16:27 / srm				
Sand	56	%		1	ASA15-5	02/01/05 19:51 / srm				
Silt	21	%		1	A\$A15-5	02/01/05 19:51 / srm				
Clay	23	%		1	ASA15-5	02/01/05 19:51 / srm				
Texture	SCL				ASA15-5	02/01/05 19:51 / srm				
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)										
SATURATED PASTE										
pH, sat. paste	7.10	s.u.		0.10	ASAM10-3.2	01/25/05 16:27 / srm				
Conductivity, sat. paste	2.32	mmhos/cm		0.01	ASA10-3	01/25/05 16:27 / srm				
CHEMICAL CHARACTERISTICS										
Phosphorus, Olsen	5	mg/kg		1	ASA24-5	01/26/05 09:59 / sm				
Nitrate as N, KCL Extract	1	mg/kg		1	A\$A38-3	01/26/05 15:17 / srm				
Organic Matter	0.84	%		0.020	ASA29-3	01/31/05 16:04 / srm				



Client: Chino Mines Report Date: 02/04/05

Project: Lucky Bill Groundhog No. 5

Collection Date: 01/11/05 Date Received: 01/12/05

Lab ID: B05010538-006

Client Sample ID: GH5-1, 18-20 in

			MCI	<i>.</i>						
Analyses	Result	Units	Qual RL QCI	Method	Analysis Date / By					
PHYSICAL CHARACTERISTICS										
Coarse Fragments	26	wt%	2	ASA15-5	01/25/05 16:27 / srm					
Sand	68	%	1	ASA15-5	02/01/05 19:51 / srm					
Silt	11	%	1	ASA15-5	02/01/05 19:51 / srm					
Clay	21	%	1	ASA15-5	02/01/05 19:51 / srm					
Texture	SCL			ASA15-5	02/01/05 19:51 / sm					
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam	(y)									
SATURATED PASTE										
pH, sat. paste	7.60	s.u.	0.10	ASAM10-3.2	01/25/05 16:27 / srm					
Conductivity, sat. paste	0.44	mmhos/cm	0.01	ASA10-3	01/25/05 16:27 / srm					
CHEMICAL CHARACTERISTICS										
Phosphorus, Olsen	ND	mg/kg	1	ASA24-5	01/26/05 10:01 / srm					
Nitrate as N, KCL Extract	ND	mg/kg	1	ASA38-3	01/26/05 15:18 / srm					
Organic Matter	0.19	%	0.020	ASA29-3	01/31/05 16:04 / srm					



Client: Chino Mines

Report Date: 02/04/05

Project: Lucky Bill Groundhog No. 5

Collection Date: 01/11/05
Date Received: 01/12/05

Lab ID: B05010538-007

M. 4...... C.:1

Client Sample ID: GH5-1, 12-16 in

	· · · · · · · · · · · · · · · · · ·			MCL/		
Analyses	Result	Units	Qual	RL QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS						
Coarse Fragments	42	wt%		2	ASA15-5	01/25/05 16:27 / srm
Sand	64	%		1	ASA15-5	02/01/05 19:51 / sm
Silt	12	%		1	ASA15-5	02/01/05 19:51 / srm
Clay	24	%		1	ASA15-5	02/01/05 19:51 / srm
Texture - C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)	SCL				ASA15-5	02/01/05 19:51 / sm
SATURATED PASTE						
pH, sat. paste	7.60	S.u.		0.10	ASAM10-3.2	01/25/05 16:27 / srm
Conductivity, sat. paste	0.33	mmhos/cm		0.01	ASA10-3	01/25/05 16:27 / srm
CHEMICAL CHARACTERISTICS			•			
Phosphorus, Olsen	ND	mg/kg		1	ASA24-5	01/26/05 10:02 / smm
Nitrate as N, KCL Extract	ND	mg/kg		1	ASA38-3	01/26/05 15:20 / srm
Organic Matter	0.14	%		0.020	ASA29-3	01/31/05 16:04 / sm



Client: Chino Mines Report Date: 02/04/05

Project: Lucky Bill Groundhog No. 5

Collection Date: 01/11/05 Date Received: 01/12/05

Lab ID: B05010538-008

Client Sample ID: GH5-1, 4 ft Grab

Matrix: Soil

Units wt% %	Qual	RL QCL	Method ASA15-5	Analysis Date / By 01/25/05 16:27 / srm
%		2		01/25/05 16:27 / srm
%		2		01/25/05 16:27 / srm
		1		
%			ASA15-5	02/01/05 19:51 / srm
		1	ASA15-5	02/01/05 19:51 / sm
%		1	ASA15-5	02/01/05 19:51 / srm
			ASA15-5	02/01/05 19:51 / sm
s.u.		0.10	ASAM10-3.2	01/25/05 16:27 / srm
mmhos/cm		0.01	ASA10-3	01/25/05 16:27 / srm
mg/kg		1	ASA24-5	01/26/05 10:04 / srm
mg/kg		1	ASA38-3	01/26/05 15:21 / srm
%		0.020	ASA29-3	01/31/05 16:04 / smn
•	s.u. mmhos/cm mg/kg mg/kg	s.u. mmhos/cm mg/kg mg/kg	s.u. 0.10 mmhos/cm 0.01 mg/kg 1 mg/kg 1	s.u. 0.10 ASAM10-3.2 mmhos/cm 0.01 ASA10-3 mg/kg 1 ASA24-5 mg/kg 1 ASA38-3

Report

RL - Analyte reporting limit.

Definitions:

QCL - Quality control limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

Energy Laboratories Inc

Sample Receipt Checklist

Client Name Chino Mines				Date ar	nd Time	e Received:	1/12/2005		
Work Order Number B05010538			į	Receive	ed by	dlr			
Checklist completed by:	Date Carrier name	17/0	ARS Grou	Review	ed by	Initials		Date	 -
	Camer Hame	<u> </u>	ANG GIOL	<u> </u>					
Shipping container/cooler in good condition?		Yes	Y	No 🗀		Not Present	13		
Custody seals intact on shipping container/cool	er?	Yes	7	No 🗀		Not Present	[]		
Custody seals intact on sample bottles?		Yes		No 🗌		Not Present	M		
Chain of custody present?		Yes	₹.	Noll					
Chain of custody signed when relinquished and	received?	Yes	Y	No 🗔					
Chain of custody agrees with sample labels?		Yes	\mathbf{Z}	No 🗌					
Samples in proper container/bottle?		Yes	'	No 🛄					
Sample containers intact?		Yes	Ī	No 🗔					
Sufficient sample volume for indicated test?	•	Yes	Ž	No 🗀					
All samples received within holding time?		Yes	¥	No 🗔					
Container/Temp Blank temperature in complian	ce?	Yes	[_	No 🗹	NA '	.c			
Water - VOA vials have zero headspace?		Yes		No 🗀	No VC	A vials subn	nitted 🔽		
Water - pH acceptable upon receipt?		Yes		No 🗔	No	t Applicable	Z		
	Adjusted?		Che	ecked by			-		
Any No and/or NA (not applicable) response mu	st be detailed in the c	ommer	nts section	below.			 · ·	-	
Client contacted	Date contacted:				Persor	n contacted			
Contacted by:	Regarding								
Comments:									
					- -				
Corrective Action									
					·		· • · • · ·		



Chain of Custody and Analytical Request Record Page ___ of ___ of ___

Refer to corresponding notes on reverse side.

Company Name:	Project Name, PWS #, Permit #, Etc.:	
Report Address: Park Pinson	Lucky Bill Chandhag No. #5 Contact Name Phone, Fax, E-mail: Sampler Name If other than Contact:	
Report Address: Paw Pinson	Contact Name, Phone, Fax, E-mail: Fam Pinson 505-537-4213 Prinson Phelpsondye. C Lewis Munk 505. 821. 3043 Lewis-Munk Ego Invoice Contact & Phone #: ELI Quote	. r. 100
P.P. BOX7	12m 11000 303-931-920 pp 1000 p 1000 p 1000 p	11
MUNICIPALITY (DD 7)	Invoige Contact & Phone #: Purchase Order #: ELI Quote	older.com
Invoice Address: PAM Pinson		#:
1 P.U. WUX. 1	Yan Pinson R0600063	j
Hurry NM 88043		
Report Required For: POTW/WWTP DW	Sample submittal for additional	Receipt Temp
Other	charges and scheduling	c <u>الر</u>
Special Report Formats - ELI must be notified prior to sample submittal for the following:	U E Comments:	Cooler ID(s) SUSUI BUY65
NELAC A2LA Level IV	S > E E E E E E E E E E E E E E E E E E	Custody Sea N
Other		Intact ON
EDD/EDT Format	TE BE SEE LEWIS MUNKS	Signature (N) N
SAMPLE IDENTIFICATION Collection Collection	- " =	Match
(Name, Location, Interval, etc.) Date Time	MATRIX 1	Lab ID
GH5-1 6-10 "	501\ X	155010538-001
² GH5-2 4-8"		2 002
3GH5-3 0-2"	·/	ш 003
GH5-2 12-20"	1	204
5		>
6		OR
7	A SERVED BATT PLAT NOT	5
8	SAMPLE DATE/TIMÉ NOT	ORAT
9		
	ESTIMATED BY LAB PERSONNEL	a
10		J
Custody Relinquished by: Part Purson	Date/Time: Shipped by: Received by:	Date/Time:
Record Relinquished by:	Date/Time: Shipped by: A&S (3) Received by:	Datestime:
MUST be	LABORATORY USE	ONLY
Signed Sample Disposal: Return to client:		actions



Chain of Custody and Analytical Request Record

Page____ of____

PLEASE PRINT, provide as much information as possible. Refer to corresponding notes on reverse side.

Company Name: Chino Minus (o.) Report Address:	am Pinon	Project Name,	PWS#	Permit #,	Etc.:	ΙÝΟ	n C	, >102	md	hay #	other than Cor			
Report Address: BOX7		Som	40	is,					6					
Hur Hy, NM 881	043	Invoice Conta		1	/					RD60	#: 1063	ELI Quote	e #:	
Report Required For: POTW/WWTP DW	•	S O ation	AN	ALYS	IS R	EQI	JES	TED			LI prior to F bmittal for a		Receip	
Special Report Formats - ELI must be notified pr sample submittal for the following: NELAC		Number of Containers Sample Type: A W S V B O Air Water Solls/Solids Vegatation Bioassay Other						C ATTACHED	Normal Turnaround (TAT)	charge	s and sched	luling	Cooler 20801	19 Seal(2) N
SAMPLE IDENTIFICATION Collect (Name, Location, Interval, etc.)	ion Collection Time	MATRIX	1					0		夏 かか	Nettion	ر.		Lab ID
16H5-2 0-6"		5011	人								*******			10538-005
2 GH 5 - 7 18-20"		IX.	1		11		4		_				NO	odo
3 GH5-1 12-16"		11		\bot	$\perp \perp \perp$	_			_		 		SE	<i>a</i> 07
GH5-1 41 Gras		1	14	\bot		_	\bot		_	ļ ļ			رڌ	1.008
6						_			AAAI	LE DATE	TIME NOT		ORY	
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10	· · · · · · · · · · · · · · · · · · ·	1	\sqcap						\top				5	
Custody Relinquished by:	~\^\\\	Date/1	ime:	5 Sh	ipped by:	Chi	ho i	nint	<u> 1</u> 05	Received by:	. 1	,		Date/Time:
Record Relinquished by:		Date/1		Sh	ipped by:	H	sbr	(2)		Received by	dh	by	01/12	Ate/Time:
Signed Sample Disposal: Return to	client:	Lab Dis	posal:							Sample Ty	LABORA1		E ONL)	1